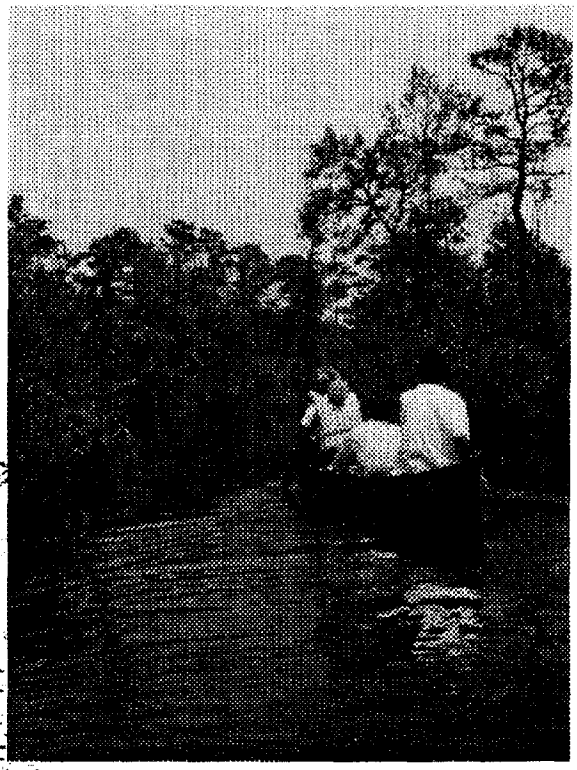

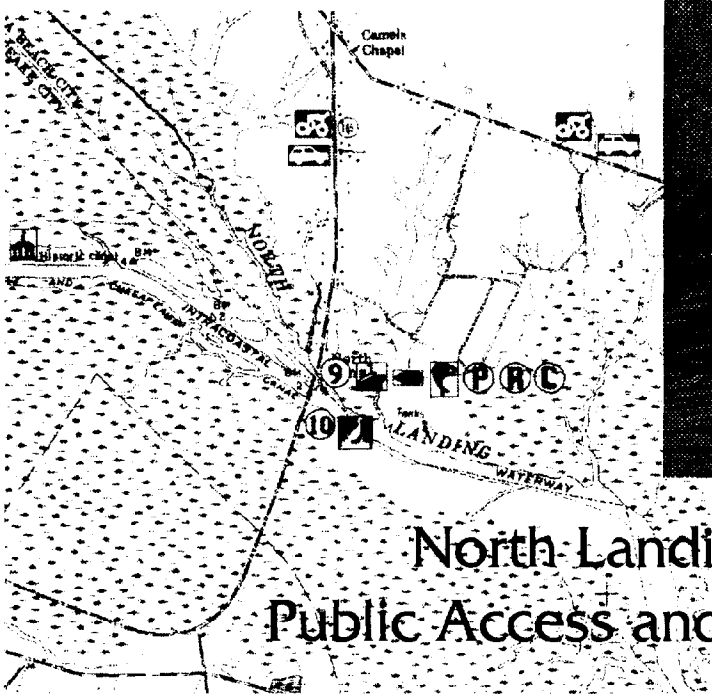

North Landing River Watershed Public Access and Visual Assessment

March 1994

DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

NOAA
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

DEQ
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

North Landing River Watershed Public Access and Visual Assessment

Prepared by: **Virginia Department of Conservation and Recreation**

In cooperation with: **City of Virginia Beach**
City of Chesapeake
Hampton Roads Planning District Commission
Virginia Marine Resources Commission
Virginia Department of Game and Inland Fisheries
Virginia Department of Environmental Quality
The Nature Conservancy
North Landing Scenic River Advisory Board

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The views expressed herein are those of the authors and do not necessarily reflect the views of NOAA or any of its subagencies.

Summary

The purpose of this study is to evaluate the North Landing River and its tributaries for potential public access opportunities and to identify the visual components contributing to this scenic waterway. The study brings together the work of various agencies and organizations which have ongoing projects in the watershed. The study boundaries have been expanded from the original grant proposal to include a portion of the Northwest River which is a component of the southern watersheds. Virginia's Southern Watersheds include Back Bay, the North Landing River and the Northwest River in southern Virginia Beach and Chesapeake. Both the North Landing and Northwest Rivers are visually similar in character offering diverse and extensive marshes as well as 50 rare and endangered plant and animal species. The watersheds are located

There is a definite need for additional public access to Virginia's waters throughout the Commonwealth and particularly in the Chesapeake region. The results of the 1992 Virginia Outdoors Survey indicate a need for various types of water access. The growth in passive recreation over the past 5 years is evident by the number of survey respondents who visit natural areas. While canoeing and fishing have always been popular activities, the addition of passive recreation, education or interpretive activities increases the need for public access to preserves and other conservation lands. In providing public access and recreational opportunities on these lands, it important to assess the appropriateness of such access and the sustainability of the site and its inhabiting species.

The regional resources along with general recommendations for maintaining and enhancing the public access and visual components of these waterways are identified herein. The existing status of the watershed's visual environment and areas which are or may be susceptible to visual intrusions are also described in the plan by river or stream reach. Projects and locations which could provide a more comprehensive approach to public access within the watershed are also addressed by river or stream reach. Finally, a summary of implementation opportunities, potential cooperative initiatives and funding options are provided. This report is intended to give local and private groups interested in public access and visual quality a basis for dealing with issues related to these topics and enough background to begin work on the projects identified in the plan.

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Megan Rollins of the Department of Conservation and Recreation prepared the maps for the final report.

Mary Heinricht provided the sketches for potential access improvements.

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1.0 INTRODUCTION

The "Public Access and Visual Assessment for the North Landing River Watershed" is a planning study funded in part by the Coastal Zone Management Program which is administered by the Department of Environmental Quality (DEQ). The Department of Conservation and Recreation (DCR) has managed this project with cooperation from various agencies, organizations and businesses including: DEQ, Marine Resources Commission (VMRC); Department of Game and Inland Fisheries (DGIF); the Department of Historic Resources (DHR); the City of Virginia Beach, Department of Parks and Recreation and Department of Planning, the City of Chesapeake, Department of Parks and Recreation; the Virginia Beach Department of Convention and Visitor Development; the Nature Conservancy (TNC) and Wild River Outfitters.

The North Landing River contains one of the most diverse and unspoiled wetland systems in Virginia. The wetlands cover an area of more than 20,000 acres in the Cities of Virginia Beach and Chesapeake. Although located near one of the fastest growing cities in the eastern United States, the area contains extensive freshwater marshes, pocosins, and forested swamps supporting fifty rare species. The area also provides important habitat for breeding and migrating waterfowl. The North American Waterfowl Management Plan through the Atlantic Coast Joint Venture (covering an area from Maine to South Carolina) has identified the wetlands of the North Landing as a top priority for protection.

In 1989, the North Landing River was designated as a Virginia Scenic River pursuant to the Virginia Scenic Rivers Act of 1970. A local interest group initiated the legislative process for protection and recognition of the river as a natural, scenic, historical, and recreational resource of statewide significance. The Virginia Scenic River designation includes the North Landing River and its tributaries from the North Carolina line to the bridge at Route 165, North Landing Road.

Conservation lands in private and public ownership are located along the major channel and tributaries of the North Landing River. These lands are being managed as natural areas and minimal public access or interpretation currently exist on them. It is the intent of the public and private landowners to develop some level of compatible access, passive recreation, and interpretation for these natural areas. Over the past decade, public concern has grown for preserving remaining examples of Virginia's native landscape. There is a need to nurture and direct the public interest in preserving natural areas. Public access projects which promote environmental education and interpretive programs are vital to building support and increasing understanding of the values and uses of nature. These natural lands contribute significantly to the scenic quality of the watershed; however, they are very limited in their potential for public access development due to the lack of upland access areas.

The purpose of this study is to evaluate the North Landing River and its tributaries for potential public access opportunities and to identify the visual components contributing to this scenic waterway. The study brings together the work of various agencies and organizations which have ongoing projects in the watershed. The study boundaries have been expanded from the original grant proposal to include a portion of the Northwest River which is a component of the southern watersheds. Virginia's Southern Watersheds include Back Bay, the North Landing River and the Northwest River in southern Virginia Beach and Chesapeake. Both the North Landing and Northwest Rivers are visually similar in character offering diverse and extensive marshes as well as 50 rare and endangered plant and animal species. The watersheds are located

along a major flyway for migratory birds and each offers comparable recreational opportunities.

There is a definite need for additional public access to Virginia's waters throughout the Commonwealth and particularly in the Chesapeake region. The results of the 1992 Virginia Outdoors Survey indicate a need for various types of water access. The growth in passive recreation over the past 5 years is evident by the number of survey respondents who visit natural areas. While canoeing and fishing have always been popular activities, the addition of passive recreation, education or interpretive activities increases the need for public access to preserves and other conservation lands. In providing public access and recreational opportunities on these lands, it important to assess the appropriateness of such access and the sustainability of the site and its inhabiting species.

The 1994 Virginia Outdoors Plan (VOP) anticipates that in the future the desire and need for passive recreation sites will increase due to the aging population. The VOP states that

"Activities such as walking, bicycling, travel, gardening, golf and visiting gardens are anticipated to increase as will ecotourism and nature tourism. The interest in tourism and travel provides opportunities for the recreation provider, communities and the private sector to create offerings which have recreational, educational and economic benefits, as well as preserve natural resources."

The VOP also states that education and continued learning or self-improvement are trends with high priorities for older adults. This trend may lead to the need for educational opportunities in conjunction with leisure. For example, an increase in ecotourism opportunities and more interpretive programs is anticipated in the future.

The regional resources along with general recommendations for maintaining and enhancing the public access and visual components of these waterways are identified herein. The existing status of the watershed's visual environment and areas which are or may be susceptible to visual intrusions are also described in the plan by river or stream reach. Projects and locations which could provide a more comprehensive approach to public access within the watershed are also addressed by river or stream reach. Finally, a summary of implementation opportunities, potential cooperative initiatives and funding options are provided. This report is intended to give local and private groups interested in public access and visual quality a basis for dealing with issues related to these topics and enough background to begin work on the projects identified in the plan.

2.0 REGIONAL CONTEXT

2.1 Regional Description

The North Landing River and its tributaries, and the Northwest River, are located in southeastern Virginia between the mouth of the Chesapeake Bay, the Atlantic Ocean, and Currituck Sound. In the last two decades, the Chesapeake region which includes this watershed has been growing at one of the fastest paces in the United States. In fact, during this time period, the City of Virginia Beach grew faster, by twenty-five percent, than any other city in the country.

Virginia Beach was established as a beach resort before the turn of the twentieth century and continues to develop as a vacation destination and resort community. The resort area and its related facilities are located primarily along the beaches and shores of the Atlantic Ocean, Rudee Inlet, the Lynnhaven River and the Chesapeake Bay. Recreation opportunities outside the resort area have not been widely promoted. As the metropolitan area of Hampton Roads continues to grow, the demand for recreational opportunities increases for both the resident population and area visitors. The increase in demand for recreation makes options for resources associated with the North Landing and Northwest Rivers attractive. Careful management and planning need to occur to introduce appropriate opportunities in these waterways and their tributaries.

2.2 Physiographic Description

(Figure 2.1)

Both the North Landing and the Northwest Rivers are located in the Atlantic Coastal Plain of southeastern Virginia. These river systems and their tributaries drain the study area. The North Landing River watershed is within the Albemarle-Pamlico Estuarine region, the second largest estuarine system in the United States. The Northwest River flows 13 miles across the City of Chesapeake in a southeasterly direction from the Dismal Swamp to Tull's Bay in North Carolina and then on to Currituck Sound. Windtides influence these drainageways, especially when the wind blows from a southerly direction, causing flooding in low-lying areas adjacent to the waterways. The physiography of the area consists of narrow, subdued, well drained ridges; broad, poorly drained flats; and coastal area.

Two man-made canal systems connect the North Landing River with the Chesapeake Bay. The nineteenth century Albemarle and Chesapeake Canal connects the North Landing River with the Southern Branch of the Elizabeth River; and London Bridge Creek and Canal No. 2, constructed by the U. S. Army Corps of Engineers, connect the North Landing River from West Neck Creek to the Eastern Branch of the Lynnhaven River. A third branch of the North Landing flows into the Albemarle and Chesapeake Canal from the heart of the Kempsville area of Virginia Beach. The main stem of the North Landing and the Albemarle and Chesapeake Canal are part of the Intracoastal Waterway System, measuring 22 miles from the Great Bridge Locks in Chesapeake to the North Carolina line.

The soils within the region are formed mainly in marine and fluvial deposits on upland ridges and side

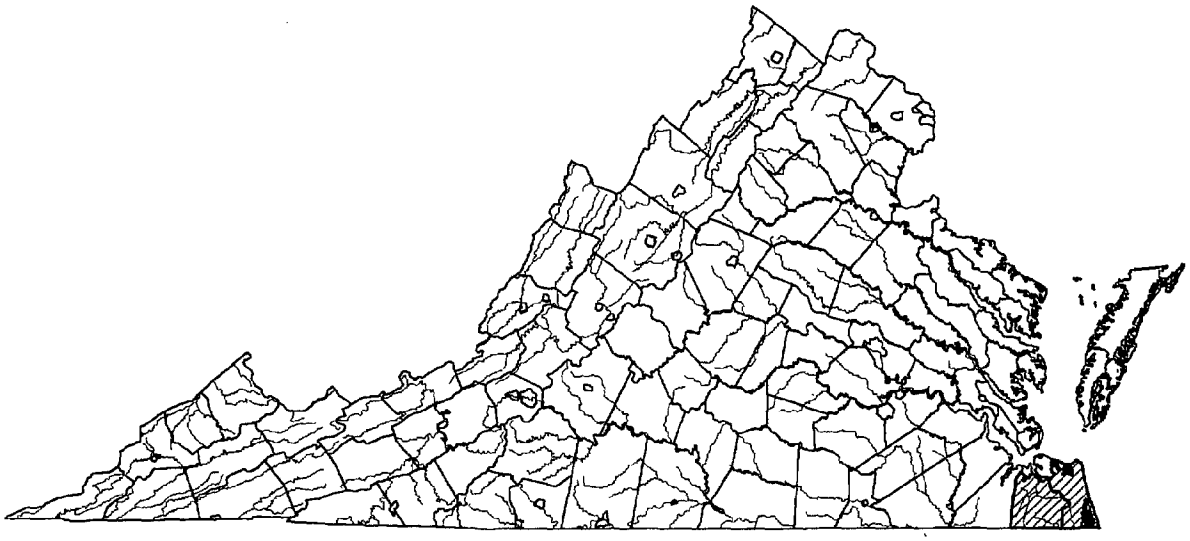


Figure 2.1 Regional Location

slopes and on broad, nearly level flats. Most of the soils have a loamy subsurface. Several types of soils predominate the region. Areas directly adjacent to the waterways are generally marshes and swamps subject to flooding. Soils in these areas are mapped by the Soil Conservation Service Soil Survey almost exclusively as Dorovan-Pocaty-Nawney soils. Dorovan-Pocaty-Nawney soils are very poorly drained and consist of organic or loamy material. These soils are formed in organic material or fluvial sediments. The slopes associated with these soils range from 0 to 1 percent. Generally these soils are important to sustaining the wetland wildlife habitat adjacent to the waterways.

The soils nearest the roadways in the area are mapped by the Soil Conservation Service Soil Survey as Dragston-Munden-Bojac soils. These soils have a loamy subsoil, seasonal high water table which rapidly permeates the substratum. Like most soils in this region, these soils have been formed in marine and fluvial sediments. Dragston-Munden-Bojac soils are generally cultivated or support woodland species.

The State-Tetotum-Augusta soils and the Acredale-Tomotley-Nimmo soils are located on uppermost areas in the region. A seasonal high water table is typical for these soil types which have a loamy subsoil. These soils are commonly cultivated or support woodland species While these soils represent the most upland of the soil types present in the region, they are limited in suitability for community development.

2.3 Land Use

The North Landing River Watershed encompasses an area of 74,635 acres with 2,841 of these acres located in open waters. Agriculture is the primary land use in the watershed, occupying forty-five percent of the land, or 32,633 acres. Residential uses, commercial buildings, and roadways cover another 12,997 acres of the basin or eighteen percent of the land area. The remaining 26,164 acres are undeveloped.

The Northwest River Watershed is not heavily developed. Of its 66,437 acres, less than one percent of the area, 3,554 acres, is in residential or commercial development. Farming and agriculture use about twenty-five percent of the area, or 16,527 acres. The remaining 46,356 acres is either wetlands or unmanaged forest lands.

The Cities of Virginia Beach and Chesapeake manage the growth and development within the North Landing River watershed, while the City of Chesapeake is responsible for land use activities within the Northwest River watershed. The City of Virginia Beach includes recommendations for this region in the Pungo/Blackwater Planning Area of the Comprehensive Plan: Planning Commission Recommendations to City Council, December 12, 1990. This plan shows much of the area surrounding the North Landing River and its tributaries as "environmentally sensitive areas". The four issues cited in the comprehensive plan of particular relevance for the Pungo/Blackwater planning area are:

(1) rural growth management,
(2) agricultural preservation,
(3) rural transportation management, and
(4) environmental protection.

The Pungo/Blackwater Planning Area is the largest Virginia Beach planning area in terms of acreage, but it has the smallest population. In 1990 the population of this area was approximately 4,300. A build out population cited in the comprehensive plan is 83,900. Between 1987 and 1990 the average rate of

residential construction in this planning area was 30 dwelling units per year. The existing land use in this area is predominantly agricultural mixed with one to three acre residential lots intermittently located as strip development along the existing roadways. A number of small, rural commercial centers have evolved along Princess Anne Road and Blackwater Road. These centers represent the only concentrations of commercial land use in the watershed.

A Rural Preservation Plan was introduced with the City of Virginia Beach comprehensive plan. This Rural Preservation Plan proposes a method to encourage well designed, rural neighborhoods that are compatible with the agricultural operations and help protect environmentally sensitive areas. The City of Virginia Beach states that this approach attempts to balance the interests of the rural area including the rural roadway system, sensitive environmental conditions and agricultural industry. The city also recognizes Environmental Protection as a key issue in the city's comprehensive plan.

The City of Chesapeake includes the region within the North Landing River Watershed and Northwest River Watershed in the Southern Chesapeake region of their comprehensive plan entitled, A Comprehensive Plan for the City of Chesapeake, Virginia. This comprehensive plan was adopted by the City of Chesapeake's City Council on July 24, 1990. Population growth in the Southern Chesapeake area is anticipated to increase from 14,129 in 1988 to 24,389 in 2002.

The existing character of the landscape in this area is rural with agricultural and residential uses predominating. Existing forested swamps and marshlands also comprise a large portion of the landscape. The comprehensive plan describes the future form of the area south of the Chesapeake & Albemarle Canal in the vicinity of Great Bridge as being a "countryside community", while the southern and western portions of the city are described as rural or environmentally sensitive.

According to the city's 1990 comprehensive plan, the Southern Chesapeake planning unit has three primary functions. These include:

(1) to sustain agriculture and protect open space;
(2) to provide for rural residential environments; and
(3) to provide remote compatible sites for the U. S. Naval Airfield and the Chesapeake Municipal Airport.

The future character of the area is to remain low density, rural and natural. Generally, the Southern Chesapeake planning unit area will not be served by public sewer and water systems. The rural character of the roads will be maintained by minimizing the traffic volumes and enhancing the roadside vegetation where necessary. Protection mechanisms for wetlands and hardwood swamps as well as for the water quality within the Northwest River are mentioned in the comprehensive plan as part of future land use planning activities.

The comprehensive plan also recognizes the importance of recreational activities in this region. The plan states that the economic and recreational development of the city entails competent usage of its natural resources. Public access to the waterways is mentioned as being necessary to meet existing and projected recreational demands. The City of Chesapeake recognizes the potential for providing a boat ramp at the Route 168 bridge over the Northwest River. Increased shoreline pedestrian and boating access to the Chesapeake and Albemarle Canal through a new eight mile hiking trail is planned. Plans for improving signage, parking and water access along the Northwest River Scenic Waterway Trail are also mentioned in the city's comprehensive plan. To help meet the need for additional recreation in a city which is becoming increasingly suburban, the City of Chesapeake incorporated an Open Space Amendment in their compre-

hensive plan. This amendment requires residential developers to either dedicate or reserve land for open space uusage within their development.

2.4 Cultural Resources

The North Landing River watershed has a rich historical context. From the native peoples who inhabited the Virginia coastal plain for over 1,500 years before Europeans to the boaters using the Intracoastal Waterway to ferry their yachts from Florida to New England, the river has played an important role in local history.

Because development pressures have been relatively low in this region, many of the historic structures remain. The Princess Anne Courthouse area has been designated a local historic area by the city. Other areas in the watershed probably do not have the density of structures or sites to warrant a similar designation; however, there is potential for a local or regional byways designation. A local byway could highlight rural and cultural points of interest by encouraging tourists to use these local roadways.

2.4.1 Architecture

Traditional building practices from Europe and England were brought to Virginia by the early settlers. Most early houses would have been constructed as earthfast, one-story wooden structures which generally did not survive over time in the coastal Virginia climate. Very few houses survived from the seventeenth century in Virginia, and none are located in the North Landing River watershed.

As the agricultural economy improved, during the 1700's, the area's residents gradually rebuilt more substantial frame houses. The surviving eighteenth century frame buildings in Princess Anne County generally reflect the life style and architecture of wealthier "planters". In the later eighteenth century, federal style architecture became more prominent in domestic architecture.

During the nineteenth century, larger Georgian style homes with a central hall floor plan were built. Locals often shifted the hallway passage to the side of the house and created a paired chimney arrangement on one end of the gabled building. This style alteration became the popular vernacular Tidewater architectural expression of the 1820's residences. Late nineteenth century rural architecture is abundant in the North Landing River watershed as indicated by the examples of simple frame houses with decorative wood detailing from this period.

The City of Virginia Beach has prepared several recent inventories on historic buildings and sites in the city. Many of those of interest are located in the North Landing area in Blackwater, Pungo, or Princess Anne Boroughs. Over 200 buildings are listed in those three boroughs. Further research and planning to include the conservation of existing, significant resources are needed to further the awareness and protection of cultural resources in the North Landing River watershed.

Several properties in the project area have the potential for listing on the National Register of Historic Places. There is also a state listing of historic sites and cultural interest points which could be linked along a local byway which could be promoted for pleasure driving to tourists.

2.4.2 Religion

Although Virginia's Statute of Religious Freedom was not ratified until 1785, North Landing and Back Bay have a number of historic churches and church sites which demonstrate the gradual break from the Church of England in the colonies.

A Baptist congregation began having services near Pungo Ferry as early as 1674. What later became the Oak Grove Baptist Church held baptisms in the North Landing River near that site. This is the second oldest Baptist congregation in Virginia. The Blackwater Baptist Church was established in 1774, and another mission followed at Princess Anne Court House in 1784.

The Dawley Meetinghouse, at Gum Bridge and Charity Neck Roads, was the site of the first Methodist congregation in Princess Anne. Francis Asbury, founder of Methodism, noted that he attended quarterly meetings at Dawley's Meetinghouse. The church currenlty located at this site was built in 1942. In 1791, Anne Nimmo dedicated an acre of land to the congregation of the Nimmo United Methodist Church for a church building. The church building was constructed shortly after and has been the site of temperance meetings, camps, and was used as a federal hospital during the Civil War.

2.4.3 Government

The standing Princess Anne Courthouse, established in 1824, is the seventh court location since the first courthouse for Lower Norfolk County was built on Broad Creek in 1661. The changes in location of the courts show the progression of development in the area that finally became the City of Virginia Beach.

The Princess Anne Courthouse was the seat for Princess Anne County government from 1868. Virginia Beach was granted its town charter in 1906, but the governing bodies were merged again in 1963 when the newly formed city established a city manager form of government.

2.4.4 Military

Hampton Roads and Princess Anne are the sites of many naval and military actions which have great significance in American history. Lord Dunmore, British governor general, fought the residents of Princess Anne long before the Declaration of Independence was signed. The burning of Norfolk, a militia defeat at Kempe's Landing, and the British defeat at Great Bridge all occurred before 1776.

The bridges in Princess Anne were objects of great interest. During the Revolutionary War, as colonists were suspected of trading tobacco for arms, the Beggars Bridge Road and Pleasant Ridge Road were identified on a map supplied to Benedict Arnold in his efforts to stop that trade. In 1863, during the Civil War, in an act of guerilla activity, all of the bridges in Princess Anne were destroyed by local residents to prevent produce from reaching market in Norfolk.

2.4.5 Commerce and Trade

As settlement spread throughout the county, a number of market centers were established. By 1835, Princess Anne Court House was considered a main commercial center in addition to its later position as the center of county government. The courthouse area had an inn, shops, a general store and several churches.

When the railroad was constructed in the county, settlements grew around the depots. Pungo grew along the railroad to Munden Point and had two large mercantile establishments. Pungo also had a cotton gin which later became an ice plant. Creeds, near Back Bay, had three stores by the 1920's.

Agricultural trade historically formed the basis of the Princess Anne economy. The North Landing River Watershed remained primarily agricultural until the last half of the twentieth century. Presently, approximately twenty percent of the land in the City of Virginia Beach is farmed. The primary land use within the Southern Watersheds is agricultural.

Tobacco was the first crop in Princess Anne and became the center of the colonial economy. In the 1680s, soil depletion, fluctuating prices, and rising labor costs caused farmers to look to other crops and to harvest timber. Farming operations were diversified in the eighteenth century; local crops included grains like corn, oats, and wheat. Flax was a cash crop for some farmers. There was also trade in pitch, tar, and pork. After the agricultural recession of the 1830's, Princess Anne farmers again diversified their endeavors. The county ranked high in hay production, third in poultry, and fifth in fisheries. Corn was a cash crop and cattle feed.

In the late nineteenth century, Princess Anne produce was supplied to a wide area including cities of the North. Princess Anne produce was even featured at the Columbia Exposition in Chicago in 1893 by John L. Babcock.

In 1925, Princess Anne County was still predominantly agricultural in use. Ninety-three percent of the population lived outside of the incorporated town of Virginia Beach. There were 1,317 farms in the county, with sixty-eight percent of the land improved. Four hundred and twenty of the farms were between 20 and 49 acres in size; 322 farms were between 50 and 99 acres. Princess Anne County was one of the most productive truck farming areas in the state. Potatoes were the largest crop, ranking fifth in the state. Other products included apples, peaches, hay, corn, cotton, wheat, and peanuts. Dairy cows and hogs were also raised at this time.

2.4.6 Transportation and Engineering

Hampton Roads became one of the major entry ports for the colonies after the settlement of the New World. Norfolk was an important shipping port through colonial times, but lost some of its prominence to northern cities after the War of 1812. The numerous waterways and extensive lowlands in the region kept water passage as the primary transportation network well into the late nineteenth century.

Kempsville was an important shipping center for early Princess Anne County. Wheat, corn, tobacco and timber were shipped from there to the Norfolk Navy Yard in the 1700's. The early settlement in the county relied on very poor roads.

The most important roadways led from Norfolk into various parts of Princess Anne. One road led from Norfolk to Kempsville and then extended on to the ocean. Another early road went from North Carolina through Great Bridge to Norfolk. The roadways into the southern part of the County were often impassable due to wet conditions. This inaccessibility created hardships for farmers trying to send produce to Norfolk markets.

Princess Anne residents continued to rely on the natural waterway for regional transportation from the 1700's until the mid 1800's. Construction of two canals began in Princess Anne during this period. Another canal project was started by the Kempsville Canal Company to connect Lynnhaven Bay, but only eight miles of it were completed before it was abandoned.

The Albemarle and Chesapeake Canal which runs east to west through the center of the county connecting the Elizabeth River with the North Landing River was completed in 1859. This canal connection was used to ship produce directly to the Norfolk markets and lumber from Currituck Sound. The canal is still an integral part of the Intracoastal Waterway system that links New England and Florida.

Pungo Ferry Road is the most southerly crossing of the North Landing River. A draw bridge was first constructed at this crossing; it burned in the Civil War and was replaced by a ferry line. By 1920, another bridge was placed at the waterway with a swing span section to allow the passage of boat traffic. This bridge was recently replaced by a high profile, arch span located on a slightly different alignment from the original swing span bridge.

The construction of the railroads in the 1880's was the next major transportation development after the canal system in the region's transportation network. The railroad added opportunity for the transportation of freight and passengers. In fact, the Bennett Boat line which ran on the canal from Norfolk to Pungo was discontinued once the railroad was constructed to Munden Point. A twenty-two mile branch line was constructed from near Kempsville through Princess Anne Court House, Pungo, Creeds and Back Bay to Munden Point. This line brought hunters to the clubs established in Back Bay, as well as provided transportation for freight and local passengers. Additionally, the Virginia Beach Railroad and Improvement Company constructed rail track between Norfolk and Virginia Beach in 1883.

The Norfolk, Virginia Beach and Southern Company operated steamships from their railhead warehouse at Munden Point to Currituck Sound. This meant produce and goods reached Norfolk in about one and a half hours. Access to the outer banks of North Carolina, was established by steamboat from the head of Currituck Sound for both passengers and freight.

The rail line closed in the 1940's and farmers began to use trucks to transport goods to Norfolk. None of the warehouses or loading facilities which served the canal or North Landing River exist today. The roadways which serve this area are two lane rural roads which follow the ridgelines and routes of the original roadways in this area.

The existing transportation system for vehicles is rural in character. The major north-south arterial is Princess Anne Road in Pungo and Blackwater Road in Blackwater. Pungo Ferry Road is the only east-west arterial that crosses the North Landing River. It connects Princess Anne Road and Blackwater Road. In the Northwest River watershed, Indian River Road is the east-west arterial which generally follows the ridge above the river.

Most of the existing roadways a part of a network of marrow rural roads serving farms and residences. These roads are not designed to carry high volumes of traffic; however, their rural character contributes to the aesthetic appeal of the region. In planning existing vehicular transportation system improvements, alignment changes should be carefully planned, roadway widths determined and roadside landscape plans prepared with maintenance of the rural landscape as a priority.

2.5 Conservation Lands & Protection Status

(Figure 2.2)

The riverine wetlands of the North Landing and Northwest Rivers have been a protection priority of a number of public agencies and private conservation groups, most notably the Virginia Field Office of The Nature Conservancy (TNC) and the Virginia Department of Conservation and Recreation (DCR). These organizations have launched a multi-year project to establish a refuge for rare plants , animals, waterfowl and plant communities. To date, TNC and DCR have jointly purchased a significant portion of the North Landing River wetland including 14 tracts which form the core of a 7,500 acre preserve system. Over the next several years, it is hoped that an additional 1000 acres will be added to the preserve system.

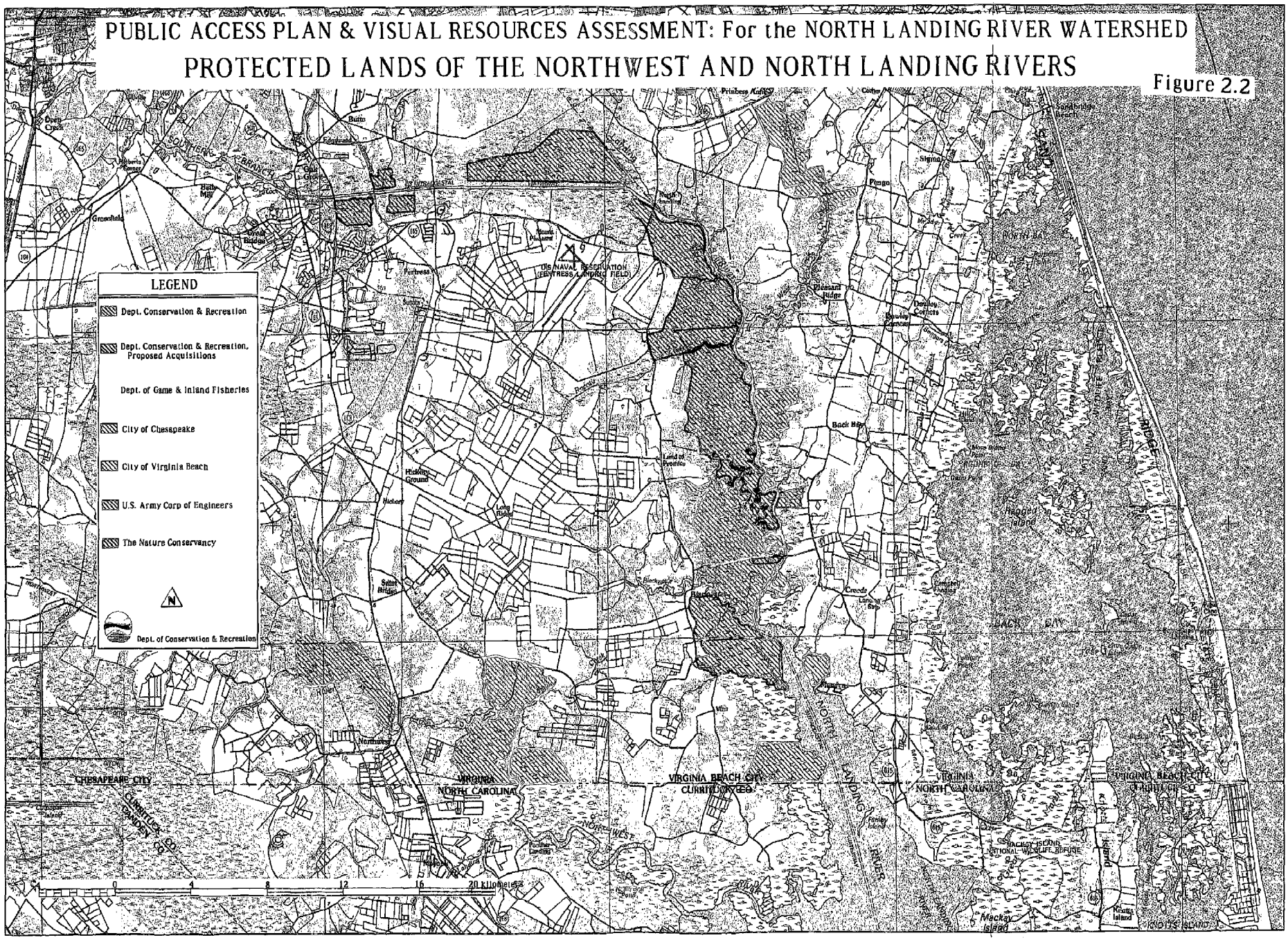
All tracts of land owned by TNC and DCR have or will be dedicated as state natural area preserves, according to the Natural Area Preserves Act if 1989. Dedication provides the strongest level of protection for land harboring natural heritage resources through formal recognition and stringent legal safeguards against conversion to inappropriate uses. Opportunities for the public to learn from and appreciate and enjoy these natural areas are currently being explored. These conservation lands form a vital link with public lands within the North Landing River watershed including Stumpy Lake Reservoir, West Neck Creek Park and Munden Park. The level of public use within these local parks varies. The river is also part of the City of Virginia Beach's Scenic Waterway System.

One of the largest protected parcels of land on the Northwest River is the Northwest River Park which is owned and managed by the City of Chesapeake. A variety of recreational opportunities are provided here. The DCR is acquiring several key parcels of estuarine marsh and forested swamp along the river east of Route 160. These lands will be dedicated as part of the North Landing - Northwest River Preserve System. They are located in proximity to Northwest River Park and not only protect the viewshed of the park, but offer increased environmental education opportunities. The Northwest Wilderness Area in southern Chesapeake adds to the available natural recreation experiences. This Wilderness Area consists of 180 acres in its natural condition and is located on the site of the federal Naval Security Activity, Northwest. All of these natural lands provide a vital link between the Albemarle-Pamlico Sound and the Great Dismal Swamp National Wildlife Refuge to the west of the project area. These protected lands form a corridor for wildlife movement and protect critical habitat for many rare and endangered species.

PUBLIC ACCESS PLAN & VISUAL RESOURCES ASSESSMENT: For the NORTH LANDING RIVER WATERSHED

PROTECTED LANDS OF THE NORTHWEST AND NORTH LANDING RIVERS

Figure 2.2



3.0 PLANNING CONSIDERATIONS

This section makes general recommendations for improved public access and to preserve the visual attributes of the North Landing River watershed. Opportunities for direct water access are limited by the physiography of the area. The visual character from the waterways, is not widely varied and changes based on the shoreline vegetation. Federal, state and local agencies and private interests have the opportunity to combine their efforts in innovative partnerships to enhance public access opportunities within this watershed. The local and private interests should take the lead in access development and the conservation of visual resources.

3.1 Potential Use Conflicts and Levels of Use

Existing access to the North Landing River, its tributaries and the Northwest River include: marina access, boat ramps for motorized or trailerable boats, camping, bank fishing, picnicking, small non-motorized access, educational and interpretive opportunities. Some of the sites provide water access to one or more types of user groups. For example, marinas often provide boat ramps, a restaurant, a store and possibly picnicking or a beach for swimming and shoreline activities. Appropriate planning for the various types of user groups is necessary to avoid potential user conflicts.

Different recreation types typically found in this watershed may present conflicts with one another particularly between more active recreation and passive recreation opportunities. Conflicts may include safety issues, environmental issues, noise or visual issues. Many of the conflicts can be avoided by planning the access to be compatible with its site and the surrounding uses. Other conflicts may be management issues which can be addressed through management programs, education and signage.

The Chesapeake Bay Area Technical Assistance Report, which is available from DCR, addresses the site requirements and needs for various water related activities. While the North Landing and Northwest Rivers are not a part of the Chesapeake Bay, these guidelines are applicable. If proper site development guidelines are followed, user conflicts can be minimized or avoided. Site sustainability is also more likely if proper site analysis is conducted and the capacity of the existing resources are related to the proposed activities and site development.

3.1.1 Boating Conflicts

The North Landing River has a high volume of boat traffic. As part of the Atlantic Intracoastal Waterway, it is accessible from the metropolitan Norfolk area via the Southern Branch of the Elizabeth River and from Currituck Sound. The North Landing River is very popular for recreation power boats, water skiing and jet skiing. Commercial boat and large recreational boat use of this part of the waterway is substantial. The large numbers and types of boating traffic on the Intracoastal Waterway precludes safe accessibility for small fishing boats, canoes and non-motorized boats.

The tributary waters of the North Landing River and the portions of the Blackwater River are enjoyed

by smaller power boats and non-motorized water craft. In the areas where a variety of boating types share the waterway, power boats can cause safety conflicts, particularly in narrow waterways. "Use" zoning along narrow waterways could be implemented as a management tool to prevent user conflicts on the smaller tributaries of this watershed.

Boat wakes can be particularly detrimental to shorelines by causing disturbance of sensitive marshland vegetation. Excessive and frequent boat wakes, especially along the narrow tributaries, may need to be addressed as part of future management plans for conservation lands in these areas.

3.1.2 Hunting and Fishing

There is a safety concern related to hunting in areas near other activities. Game birds and animals other than deer can be legally shot with shotguns from boats, but the hunter must have permission of the landowner on whose land the game is located. Migratory game birds can also be hunted along these waterways, within the parameters of state regulation. Old duck blinds are common in the estuarine marshes along these waterways. The City of Virginia Beach currently allows only floating duck blinds for hunting. All outdoor recreationists should wear blaze orange during the various hunting seasons as a safety precaution.

Fishing is a popular recreational as well as lucrative commercial activity in the North Landing and Northwest River watersheds. The VMRC regulates fisheries throughout the watershed. Popular fisheries vary from catfish, chain pickerel, crappie, largemouth bass, sunfish, and white perch in the North Landing River to bowfin, crappie, gar, largemouth bass, sunfish, and white perch in the Northwest River. Long poles or posts protruding from the water are commonly seen near the shoreline. These posts hold catfishing lines and are tended throughout the watersheds by local fishermen. Crabbing is another common fishery within the watersheds. Eel are also caught using pots which resemble crab pots from the water's surface. Commercial fishing is almost always conducted from a small to medium sized powerboat. Aconsiderable number of recreationists enjoy bank fishing at selected locations throughout the watersheds.

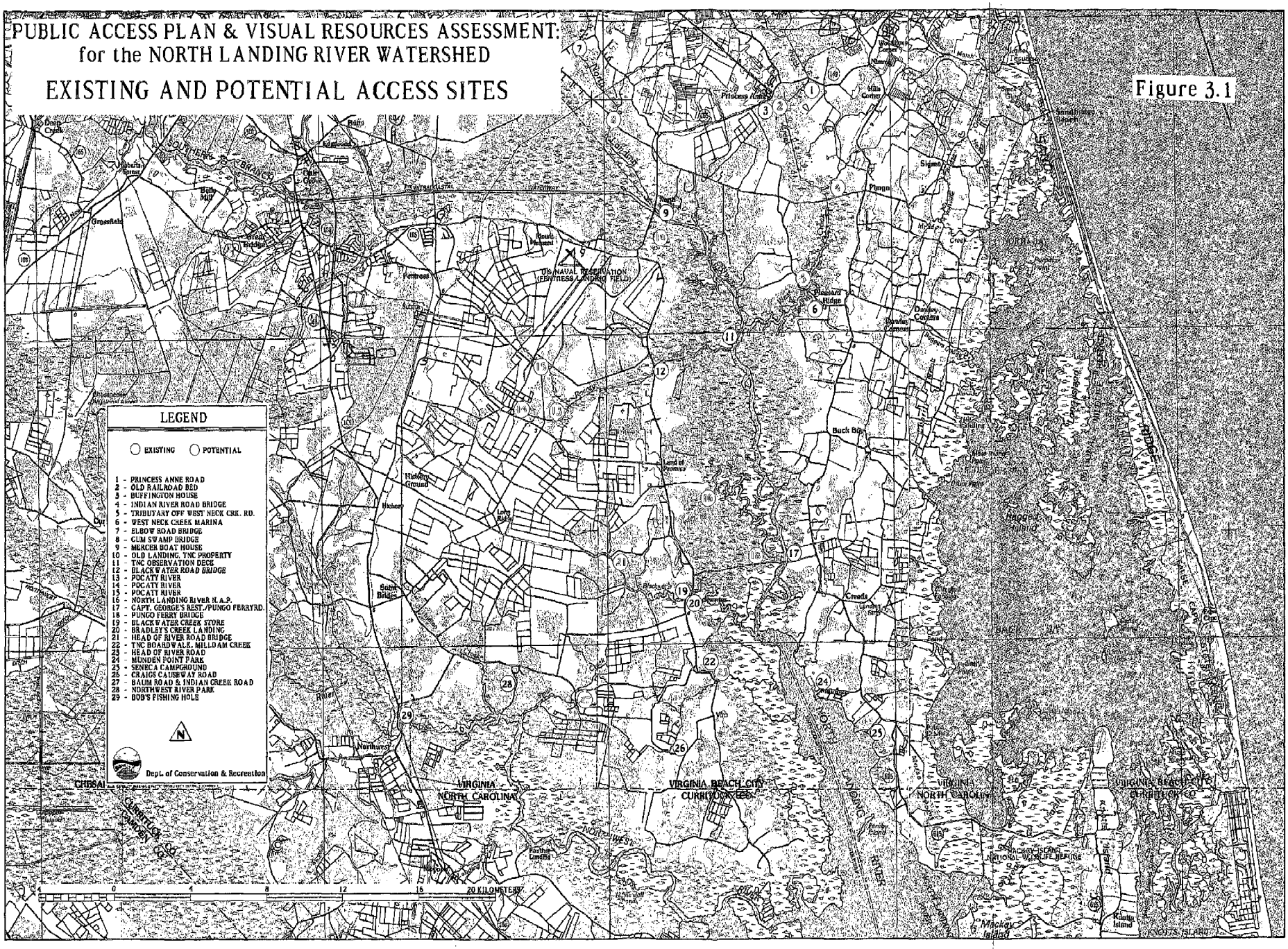
3.1.3 Environmental Stresses

The Northwest River is less intensely used for recreational boating than the North Landing River. Fishing is the most popular activity, but its potential has diminished due to saltwater intrusions related to water withdrawals during droughts. Freshwater fish populations are also affected by drought.

Sedimentation and degradation of water quality as a result of poorly managed adjacent land uses is a problem for aquatic habitats and sensitive marshlands. Excessive sedimentation affects areas of submerged aquatic vegetation (SAV) which provides rich, diverse aquatic habitats and serve as a nursery to various

PUBLIC ACCESS PLAN & VISUAL RESOURCES ASSESSMENT:
for the NORTH LANDING RIVER WATERSHED
EXISTING AND POTENTIAL ACCESS SITES

Figure 3.1



aquatic species. The implementation of Best Management Practices (BMPs) for all types of adjacent land uses is essential to maintain and protect the water quality of the North Landing and Northwest River watersheds. While many of the conservation lands directly adjacent to the shorelines of these waterways are protected, upland development within the watershed could significantly alter these sensitive areas. If not properly managed, development within the watersheds could degrade the water quality through increased erosion and sedimentation.

Erosion along the shores of the North Landing River and the Albemarle and Chesapeake Canal may in part be caused by the wake of commercial and recreational boats. There is significant erosion of the shoreline in forested areas where the canal narrows. In the broader, southern sections of the waterway, boat wake may be the cause for the gradual loss of bald cypress trees along the shores. Lowering of the boating speed limits could decrease this erosion problem. Management alternatives along sensitive shorelines need to be evaluated with regard to disturbances caused by boat wakes.

Changes in adjacent land uses may stress sensitive areas within the watersheds. Development may alter hydrology, cause flooding, or create water quality degradation which directly impacts sensitive habitats. Land disturbance, for example, could create conditions which allow the invasion of common reed. Common reed (*Phragmites australis*) is a tall wetland grass that has become a destructive weed in Virginia in recent years. This plant is a problem species because it can be invasive, growing at very rapid rates to displace beneficial wetland plants while providing little food or shelter value to wildlife. Common reed destroys diverse wetland communities and interferes with the ecological functions of wetland habitats.

3.1.4 Carrying Capacity

The North Landing River access sites and facilities experience very high usage. During the summer months, the existing marinas are fully occupied and the boat ramps are crowded. Munden Point Park is the only publicly owned boat ramp in the watershed. The North Landing River is an appropriate destination for recreational boaters, particularly since its waters are shared by the Intracoastal Waterway.

The carrying capacity of sensitive sites should be analyzed prior to development. Use or visitation limits may need to be established for some sites. Sites can be linked or promoted as part of a system to lessen the direct stress on individual sites. Also sensitive sites could be managed by reservation which limits the over use.

3.2 Types of Activities/Opportunities

(Figure 3.1 and Table 3.1)

The types of existing and potential access along the North Landing River are categorized in five areas: fish and wildlife related recreation; boating; greenways, bikeways and trails; park and natural area activities; educational and research opportunities; and cultural recreation and ecotourism. Existing access is shown on Figure 3.1 and described in Table 3.1.

Table 3.1
EXISTING AND POTENTIAL ACCESS SITES

Existing # Potential #	Location	Waterway	Owner	Facility
1-Existing *(Not shown of Figure 4.3)*	Princess Anne Road just east of the courthouse complex and Holland Road	West Neck Creek	City of Virginia Beach	Small pull off for 2 -3 cars with informal bank access to the creek.
2-Potential	Old Railroad bed from West Neck Creek to Princess Anne Road	West Neck Creek	City of Virginia Beach	Provide a walking/bicycle trail along the railroad bed. The site should be evaluated for interpretive opportunities.
3-Existing	Daniel Whitehurst/Buffington House across Princess Anne Road from the courthouse complex	Tributary to West Neck Creek	City of Virginia Beach	Informal, seasonal access to West Neck Creek via trails.
4-Potential	Indian River Road bridge	West Neck Creek	City of Virginia Beach	Access should be provided at this location when this bridge is replaced or any road improvement is planned.
5-Potential	Small tributary off West Neck Creek Road	Tributary to West Neck Creek	Needs determination	Access was abolished at West Neck Creek Road when the new bridge was constructed. This location could offer an alternative to the previous access. This site needs further evaluation to determine seasonal usage and required dredging for suitability.
6-Existing	West Neck Creek Marina located on Vaughn Road	West Neck Creek	Private	Boat Ramp Bank Fishing Canoe Launch 30 Marina Slips
7-Existing *(Not shown on Figure 4.1a)*	Elbow Road bridge crossing	North Landing River	City of Virginia Beach	Informal canoe access with parking for 2-5 cars.
8-Potential	Indian River Road at Gum Swamp bridge	North Landing River	City of Virginia Beach	Informal canoe access and parking for 2-4 cars.

Existing # Potential #	Location	Waterway	Owner	Facility
9-Existing	Mercer Boat House, 3001 Mt. Pleasant Rd., Chesapeake, VA 23320	North Landing River	Private	Boat Ramp (18' concrete) 400' dockage, rowboats, bait/tackle, restaurant, 14 marina slips
10-Potential	Old Landing on Nature Conservancy Property near North Landing Road	North Landing River	The Nature Conser-vancy	No facilities currently exist. Could offer access from the water and opportunities for nature walks, bird watching or interpretation.
11-Existing	TNC Observation Deck access from the water access only.	At the confluence of the Pocaty River with the North Landing River	The Nature Conservancy	Offers an observation vantage point for canoeist or small boats approaching from the water. This is an excellent site for motorboat education relating to the surrounding natural areas.
12-Existing	Blackwater Road bridge over the Pocaty River	Pocaty River	City of Chesapeake	This informal access for canoes needs upgrading. Bank fishing. Parking for 2 cars. High traffic speed causing user conflicts.
13-Potential	Long Ridge Road	Pocaty River	VDOT	Potential canoe access
14-Potential	Fentress Airfield Road	Pocaty River	VDOT	Potential canoe access
15-Potential	Fentress Airfield Road at Pocaty Road	Pocaty River	VDOT	Potential canoe access
16-Potential	North Landing River Natural Area Preserve (Kellam tract)	Alton's Creek	DCR	Canoe access, walking trail and interpretive activities.
17-Existing	Captain George's Restaurant & Pungo Ferry Marina off old Pungo Ferry Road	North Landing River	private	Transient slips (30), boat ramp (32' concrete), sanitary facilities, convenience store, restaurant.

Existing # Potential #	Location	Waterway	Owner	Facility
18-Potential	Old Pungo Ferry Road bridge site and adjacent 6 acres of property	North Landing River and Alton's Creek	City of Virginia Beach and private	This property if developed as a boat ramp and small non-motorized boat access would provide the needed link for access adjacent to the Natural Area Preserve on Alton's Creek. the City proposed an ISTEA project for the acquisition of property and ultimate development of access at this site. Additionally a viewing area and walk could be developed on the new Pungo Ferry bridge to give excellent view opportunities to the natural areas and provide a pedestrian link across the North Landing River.
19-Existing	Blackwater Creek Store on Blackwater Road	Blackwater River	Private	Store/bait & tackle, boat ramp
20-Existing	Bradley's Creek Landing Ramp on Blackwater Road	Blackwater River	Private	Ramp
21-Potential ***(Not shown on Figure 4.5)***	Head of River Road bridge	Blackwater River	VDOT	Potential canoe put in
22-Existing	TNC Boardwalk off Blackwater Road	Milldam Creek	TNC	A boardwalk for marshlands observation and natural area interpretive study. Open periodically to the public or by reservation.
23-Potential	Head of River Road	Milldam Creek	City of Virginia Beach	Canoe put in
24-Existing	Munden Point Park	North Landing River	City of Virginia Beach	Boat ramp, picnicking, play areas.
25-Seneca Campground	144 Princess Anne Road	North Landing River	Private	Over 100 camping spaces offering both primitive sites and electric and sewage hookups. Boat ramp,swimming pool, bank fishing, picnicking, tot lot, laundromat and camp store.

Existing # Potential #	Location	Waterway	Owner	Facility
26-Existing ***(Not shown on Figure 4.6)***	Craigs Causeway Road on a tributary of Milldam Creek	Tributary of Milldam Creek	VDOT	Canoe access.
27-Potential	Baum Road & Indian Creek Road at Smith Creek	Smith Creek	VDOT	Canoe access.
28-Existing	Northwest River Park off Indian Creek Road	Northwest River	City of Chesapeake	Canoe access, boat ramp, picnicking, camping, nature trails.
29-Existing	Bob's Fishing Hole	Northwest River	Private	Marina, boat ramp.

3.2.1 Fish and Wildlife Related Recreation

Fish and wildlife related recreation includes the following activities:
- fishing
- hunting
- birdwatching
- wildlife photography

The opportunities for fish and wildlife recreation in the North Landing River watershed is expansive due to the number of properties which are preserves or protected as conservation lands. Fishing for a variety of species of fish is a popular sport in the creeks and tributaries of the North Landing River. Commercial as well as recreational catfishing is prevalent on the main branch of the North Landing as well as on its tributaries. Eel and crab traps are also a part of the fishing activities which occur in this region.

Private lands are open for hunting based on land owner permission. Also, hunting from the water along the periphery of conservation lands and the NLRNAP is allowed. There is also a wealth of opportunities for birdwatching and nature photography which are directly related to the fisheries and wildlife resources throughout the watershed.

3.2.2 Boating

Boating includes the following activities:
- rowing
- canoeing
- kayaking
- motorboating
- sailing
- water skiing
- jet skiing

Boating facilities which accommodate the above activities include marinas, boat ramps and canoe launch areas.

3.2.2.1 Marinas

There are four marinas located within the approximate 35 miles of waterway along the North Landing River and Northwest River. These marinas include West Neck Creek Marina, Pungo Ferry Bridge Marina, Bob's Fishing Hole, and Mercer Boat House. Two of these marinas are located directly on the North Landing River and another, West Neck Creek Marina, is located on West Neck Creek, but is easily accessible from the North Landing River. Bob's Fishing Hole is the only marina located on the Northwest River in Virginia. This marina caters to anglers and recreation boaters using the river for day trips.

Due to the low lying topography, additional land suitable for a marina is not readily available in the study area. A study for suitable marina sites was not a part of this planning process. Should additional

marina sites be proposed in the study area, these should be limited to the main stem of the North Landing River. Boat traffic on the Intracoastal Waterway is often heavy, with peak traffic occurring seasonally. An influx of additional day use boats from marinas could further congest this waterway. Given the prevalence of sensitive lands in the watersheds, a study to determine an appropriate location and the carrying capacity of the portion of waterway should be conducted prior to siting or planning for an additional marina in the Southern Watersheds.

The Virginia Outdoors Survey shows motorboating as the seventh most popular activity statewide. Sixty-nine percent of the households surveyed in the Chesapeake recreational region indicated that they enjoyed motor boating as an outdoor activity. Recreationists participating in this activity did so on an average of 36 days per year. Based on this data, marina slips are needed to meet the recreational demand in the Chesapeake recreational region. Given this need and the type of water present in the upper reaches of the North Landing River watershed, perhaps a small, carefully designed, modern marina facility could meet this recreational demand. Should the development of a marina be pursued anywhere within the Southern Watersheds, careful evaluation and site analysis are essential to insure such a development will not impact sensitive environmental areas. Development of this type should involve coordination with federal and state agencies and organizations responsible for regulating this type of activity and for managing the conservation lands within the watersheds.

Some educational and interpretive information could be provided at marinas in the area and at marinas throughout the watershed just north and south of the study area. This would provide better appreciation for the uniqueness of the area to persons operating large vessels. This type of information could further the conservation initiatives and increase opportunities for ecotourism.

3.2.2.2 Boat Ramps

There are at least 8 existing boat ramps along the waterways. Two of these ramps are located in publicly owned parks, the remainder are privately operated as boat ramps or in conjunction with a marina. Sites which offer boat ramp access to the water include:

West Neck Creek Marina
Mercer Boat House
Pungo Ferry Marina
Blackwater Creek Store
Bradley's Creek Landing
Munden Point Park
Northwest River Park
Bob's Fishing Hole

Additional small boat access could be provided at the various road crossings of the waterways. This would increase the public access to the waters for small boats, while minimally impacting the surrounding lands. Parking lots near or adjacent to the bridge crossings would be necessary. Perhaps a public private partnership could be established at some locations to provide appropriate parking. Since the City of Virginia Beach owns a considerable amount of property on West Neck Creek, perhaps this is an appropriate location for a linear park which provides recreational opportunities including a boat ramp for small fishing boats and canoes.

Facilities which compliment the use of the waterways by boaters exist throughout the watershed. These facilities include bait and tackle shops, convenience stores and small restaurants. The opportunity to educate boaters regarding the significance of the watershed should be considered a priority. Information could be disseminated to boaters including providing material or brochures at the various boater retail, outlet and service locations. Also, the development of water to land access for certain natural areas should be pursued to increase the availability of conservation lands to motor boat recreationists. For example, the old landing site (Site 10, Figure 3.1), located near North Landing Road in the upper reaches of the North Landing River and adjacent to TNC lands, could be developed as an environmental education or interpretive center which focuses on boat traffic use on the North Landing River. This site could extend the concept which TNC employed at the confluence of the Pocaty River with the North Landing in construction of the observation deck which is intended to be accessible only by small non-motorized boats.

3.2.2.3 Canoe Access

The North Landing River is not suitable for use by canoes or small non-motorized boat traffic due to the heavy boat traffic and size of vessel typically using this waterway. The use of the North Landing River as the Intracoastal Waterway makes it accessible to many in state and out of state boaters, but limits the safety for small boat use, especially during peak travel times. The tributaries of the North Landing are particularly attractive and conducive to small non-motorized boat traffic. Canoe access exists along most of these tributaries; however, the existing access may not provide trip opportunities or trails which do not involve back tracking.

The various canoe access points are shown on Table 3.1 and in Figure 3.1. Analysis has been done to evaluate trips or canoe trails existing in the watershed. Section 4.0 discusses the potential for specific canoe access points by river or stream reach.

3.2.3 Greenways, Bikeways and Trails

Greenways, bikeways and trails includes the following activities:

- pleasure walking
- walking for health
- jogging
- hiking
- bicycling
- horseback riding
- pleasure driving

The North Landing River could be considered a key component to a water-oriented greenway system. The river is already designated as both a Virginia Scenic River and a Virginia Beach Scenic Waterway and Canoe Trail. The wetlands and forests abutting the waterway present miles of uninterrupted natural beauty

to the river traveler. These lands also offer tremendous opportunities for the development of low intensity recreational opportunities as part of the greenway system.

Access to this greenway system from the upland is limited primarily because few roadways cross the river and upland ridges existing adjacent to the waterway's edges are scarce. Intersecting roadways and access points which cross the areas waters should be included in proposed local greenway, byway or trail systems. These crossings are the connectors between the water-oriented and land-based activities along the greenway.

The City of Virginia Beach draft outdoors plan suggests water as a unifying theme for the plan. Within the city's projected plans for future development are the Landstown/Pungo Trail and the West Neck Creek District/Linear Park, both located near West Neck Creek in the North Landing system. These planned parks will enhance the greenway concept in the study area.

Bikeways, hiking or other recreational trails are not currently included in the southern watersheds area. The typical roadway in these areas is a two-lane rural section with minimal shoulders and drainage ditches along one or both sides. Future road improvements in this section of the city should include the addition of bikeways and pedestrian facilities. This is especially important on the bridges that cross the North Landing River and its tributaries.

The scenic nature of the rural road system lends itself to scenic and historic touring. The flat topography and the agricultural fields provide broad views for the automobile traveler. The rich history of this area can be designated with signage at points of interest. A local brochure outlining the region's cultural and historical context could be developed to inform tourists and to promote ecotourism.

The local scenic "byway" routes within of the North Landing watershed could connect and complement a larger system of locally recognized scenic roads including the areas of Back Bay, Chesapeake, Knotts Island, and North Carolina. Tours could be designed categorically featuring military history, architecture, scenic views, natural areas, recreational opportunities or a combination of these resources.

The right-of-way for the Munden Point railway line presents a potential for recreational use. The proposed Landstown/Pungo Trail to be developed by the City of Virginia Beach is located within this right-of-way. Preliminary plans for this include paved sections for bike and pedestrian usage with a separate trail for equestrian use. Much of the right-of-way between Pungo and Munden Point Park has been converted to private control, but there may be sections which have potential as links or short trails.

3.2.4 Park and Recreational Activities

Park and recreational activities include the following:

- camping
- picnicking
- field sports
- attending special events
- festivals

Previous studies and reports have examined the recreational resources along the North Landing River its tributary systems. The Southeastern Virginia District Planning Commission prepared a The "Virginia Beach Scenic Waterway Plan" in 1985, followed by the "Waters of Southeastern Virginia" in 1988, both of which addressed the development of scenic waterways and recreational trail systems. West Neck Creek was studied in 1991, by a consultant to the City of Virginia Beach, Department of Parks and Recreation. Their study proposes several development plans along West Neck Creek. This study focuses on the relationship of those highly-developed access points and parks with the NLRNAP and how all these resources are interrelated in a system.

The parks within the Southern Watersheds provide significant regional and local recreational facilities and public access to the waterways. Munden Point Park, Northwest River Park, the proposed West Neck Creek Park serve as major access points and provide a variety of leisure and recreation activities. In addition to providing facilities for popular recreational activities, these publicly owned parks and natural areas could serve as focal points for special river or watershed events. These facilities in combination with the small, informal access sites throughout the watersheds provide the majority of access opportunities.

3.2.4.1 Camping

There are only two opportunities for camping within the study area. Seneca Campground, a private campground located off Princess Anne Road, offers both primitive camp sites and camping with electrical and sewage hookups. A total of 100 camp sites are currently in use at Seneca Campground where visitors can enjoy boating and fishing opportunities along the North Landing River. A boat ramp, bank fishing opportunities, swimming pool, picnic areas, recreation room, laundry and camp store provide camping amenities.

The Northwest River Park provides public camping in the 96 acre park. Regionally significant, the Northwest River Park offers opportunities for canoeing, bank fishing, boating, and hiking or bicycling the trails to overnight visitors. The park also provides numerous interpretive and educational opportunities featuring the rich biodiversity of the area.

With the North Landing River and Northwest River watersheds being such scenic and diverse a region, additional camping could enhance ecotourism in the area by allowing visitors to intensify their experience by spending more time in the out-of-doors. The 1992 Virginia Outdoors Survey indicates that statewide camping is the tenth most popular outdoor activity. There is an opportunity for camping to extend overnight accommodation options in the area. Bradley's boat ramp is the site of several old fish camp type cabins which are located along the shoreline of Blackwater Creek just south of Blackwater Road. These cabins were apparently condemned by the City of Virginia Beach due to improper handling of sewage. If alternative sanitary facilities were provided in self contained units and the cabins were renovated to meet code requirements, then these facilities could provide a rustic experience along the banks of the Blackwater Creek. This location on Blackwater Creek provides great fishing access as well as access to large portions of natural areas owned by TNC and DCR. Trips up river in small boats from this location provide wonderful views of the river and marsh systems as it narrows to the headwaters.

3.2.5 Environmental Opportunities

Environmental opportunities include the following:
- environmental education/interpretation
- nature observation
- research
- ecological management
- biological monitoring

3.2.5.1 Environmental Education/Interpretation

The parcels along the North Landing River and the Northwest River which are either in private conservation or public ownership form a natural greenway system of national significance. When combined with the Dismal Swamp and Back Bay, this area is considered the largest continuous natural area east of the Blue Ridge Mountains. In fact, this natural environment is renowned for its richness and biological diversity.

Opportunities for environmental education and interpretation are numerous within the two watersheds and as yet relatively untapped. Natural areas and other conservation lands serve as outdoor classrooms for students of all levels, from grade school through college. These lands are an important teaching resource to fill the need for contact with the natural world.

Education and interpretation may range from self guiding trails with on-site kiosks and interpretive brochures highlighting particular features to the development of a "Backyard Classroom Program" curricula for the public school system. Creative educational opportunities may include water-related facilities aimed at reaching the boating public.

Limited use of the natural areas within the watersheds by college students and professionals is currently being made. The U.S. Army Corps of Engineers uses a site off Blackwater Road for wetland delineation training. Appropriately designed access in these systems would increase the sensitive use by local educational institutions and professional groups. Certain school groups are currently utilizing the area as well. Rosemont Woods Elementary School, which is located in the northern portion of the North Landing River watershed has developed a small trail system and uses the area surrounding the school as an informal classroom.

The Nature Conservancy has developed two public access sites on the west side of the North Landing River. These facilities are a boardwalk on Milldam Creek and a water access observation deck at the confluence of the Pocaty River and North Landing River. The Virginia Department of Conservation and Recreation is planning a public access interpretative facility for the Alton Creek area. Additional opportunities for environmental interpretation exist throughout the watershed.

Outreach is necessary to inform the active boating recreationists along the waterways. To reach a larger populous, interpretative brochures could be developed for distribution at marina and boating retail outlets. Kiosk-type displays developed in conjunction with advertisers of boating products could, if appro-

priately implemented, inform users of the watershed's special values and sensitive resources.

Because the Intracoastal Waterway is used by great numbers of boaters annually and many of these boaters are from outside the region, a program to reach these recreationists could further enhance the conservation and protection efforts for this watershed. Such a program may include contacting the persons making the maps for the Intracoastal Waterway and adding information relating to the watershed where appropriate. Also advertisements in the Boaters Almanac, a publication of marinas and boating facilities could inform those outside the region of the opportunities within the watershed. Educational and interpretive opportunities can be expanded with the addition of information in these and other widely distributed publications. The local distribution of pamphlets, incorporation of some interpretive displays on selected sites, and the advertisement of special educational and interpretive programs through the local parks and recreation departments or other organizations may provide opportunites to increase public awareness.

3.2.5.2 Nature Observation

Adults as well as children have a great interest in observing nature. Numerous wildlife clubs, birding clubs, native plant and garden clubs frequent natural areas. These areas are conducive to hiking, nature study, nature photography, wildflower observation and bird watching. The natural areas on the North Landing and Northwest Rivers make this area an attractive place to live and visit. They may, with appropriately planned public access, contribute to the economic health of the region through ecotourism. Recent studies have shown that bird watchers in the Cape May, NJ area contribute over $5 million annually in the region on birding related activities.

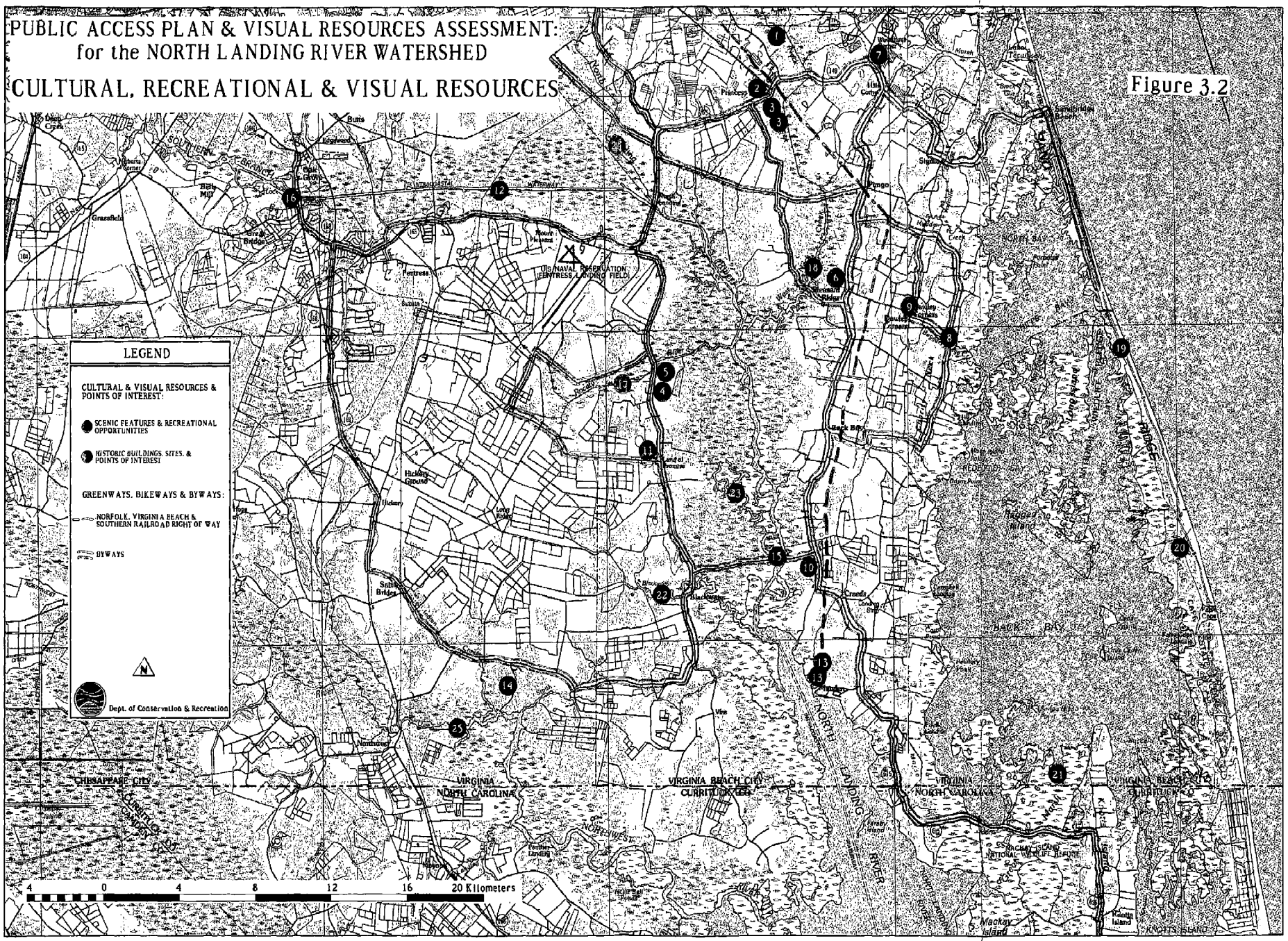
3.2.5.3 Research

In this day of tremendous technological advancement, there can be no question of the value of basic scientific research. The natural areas within the watersheds are resource materials from which new knowledge can be derived. As scientists learn more about the natural world, they are increasingly aware of what we will lose with the impending destruction of natural communities. The loss in real wealth by the extinction of living organisms is beyond comprehension. Numerous studies are underway in the watersheds to understand the biology and the life history of rare and endangered species. Hydrologic and fire history research is being conducted in the North Landing River. This research will provide a better understanding of the ecological forces influencing this estuarine wetland ecosystem and may ultimately help resolve water quality and ecological management problems.

PUBLIC ACCESS PLAN & VISUAL RESOURCES ASSESSMENT: for the NORTH LANDING RIVER WATERSHED

CULTURAL, RECREATIONAL & VISUAL RESOURCES

Figure 3.2



3.2.5.4 Ecological Management

Long-term preservation of the natural areas and endangered species found in these watersheds requires continual management and protection. Acquisition, natural area preserve dedication and other protected status does not ensure long-term preservation in the absence of proper management. The over-riding objectives of management and protection of the North Landing and Northwest River wetlands are to prevent unnatural disturbances and to restore natural conditions to the extent possible. Restoration of natural conditions is important in preserving Virginia's natural diversity and preventing further degradation of areas. Ecological management projects currently underway in the Watersheds include removal and control of invasive species such as Common Reed and the reintroduction of fire as a natural process. These projects require careful planning, trained staff, and proper equipment to fully implement. As many as fifteen different agencies and conservation organizations are involved in these projects which serve as models in land management for natural resource managers throughout this region of the coastal plain.

3.2.5.5 Biological Monitoring

These natural areas serve as check areas in studies relating to air, water, and soil pollution. Biological monitoring programs of natural communities, species, air, and water provide valuable information on the efficacy of management programs and how well of the quality of the surrounding environment is being maintained.

3.2.6 Cultural Recreation and Ecotourism

(Figure 3.2 and Table 3.2)

Cultural recreation and ecotourism includes a myriad of activities and may incorporate activities from various categories into recreation options. Included among the activities in this area is sight-seeing and visitation of historic sites (Table 3.2 and Figure 3.2)

There is the potential for this area to attract visitors based on cultural history. A diversity of cultural topics ranging from eighteenth century agricultural architecture to a history of the engineering of the Albemarle and Chesapeake Canal exist. Sites related to military conflict and strategy, native peoples, colonial settlement and early transportation systems may interest travellers. In fact, studies show that seniors will stay an extra, unscheduled day in an area which offers a variety of historical attractions.

It is important to link the natural resource opportunities available along the North Landing and Northwest Rivers with other resources available locally. In addition to the city parks, state parks, and federal refuges, local museums, amusement parks, and recreational facilities should be linked through literature and trail routes. Marketing efforts for the watershed should include a local, regional and interstate approach due to the uniqueness of the landscape and variety of recreational opportunities which offer tourist attractions.

Table 3.2
CULTURAL AND VISUAL RESOURCES

# Dev # Und	Location	Waterway/ Feature	Owner	Feature/ Facility
1 - U	2402 Holland Road	West Neck Creek	Private	Thomas Lovett House, ca. 1790, potential for eligibility to National Register of Historic Places
2 - D	Princess Anne & North Landing Roads	Princess Anne Historic District	City of Virginia Beach	Princess Anne Courthouse was built in 1820 as the sixth location of the county courthouse.
3 - U	N. Landing Road across from Princess Anne Courthouse	Princess Anne Historic District	City of Virginia Beach	Daniel Whitehurst House, currently called the Buffington House. ca, 1793. Extensive grounds still intact.
4 - U	4152 Blackwater Road	Pocaty River	Private	Gresham Farm on Gresham Hill, ca. 1790-1830. Well preserved Federal style house is a good candidate for the Federal Register. Cemetery of Gresham and Ives families.
5 - U	4151 Blackwater Road	Pocaty River	Private	Stuart Ives House, ca. early 1800's. House on first land grant bought by Timothy Ives in 1671 from John Marshall.
6 - U	1489 Princess Anne Road	North Landing River	Private	Anthony Fentress House, ca. 1765. The Fentress family descended from Fred Fentris who came to the area in 1651.

# Dev # Und	Location	Waterway/ Feature	Owner	Feature/ Facility
7 - D	2200 Princess Anne Road		Private	Nimmo United Methodist Church, ca. 1791. Church served as a Federal Hospital and housing for Union troops during War Between the States.
8 - U	Pleasant Ridge Road at Beggars Bridge Creek	Beggars Bridge Creek	City of Virginia Beach	Site of bridge identified on map provided to Benedict Arnold when commanded British forces in 1781 in attempt to stop trade of tobacco for arms.
9 - U	4080 Charity Neck Road	Dawley Corners	Private	Charity United Methodist Church was established in 1789 by James and Wm. Dawley. Francis Asbury, founder of Methodism, noted "quarterly meetings at Dawley's Meeting House."
10 - U	685 Princess Anne Road	North Landing River	Private	The first Baptist services in Virginia Beach were held on a barge in the N. Landing River. The first Baptist church building was built in 1764, and that congregation later established at this site.
11 - U	3173 Land of Promise Road		Private	Ca. 1750 and 1780 "I" house. Very few changes have been made to this 18th century house and it would be a good candidate for the National Register.
12 - U	Chesapeake and Virginia Beach	Albemarle and Chesapeake Canal	US Army Corps of Engineers	Steam Dredges were used in 1858 to excavate the canal which linked the Southern Branch of the Elizabeth River with the North Landing River.

# Dev # Und	Location	Waterway/ Feature	Owner	Feature/ Facility
13 - U	Munden Point Road	North Landing River	City of Virginia Beach	Terminus of the Bennett Steamboat Line and terminus of the "Munden Point Line" of the Norfolk, Virginia Beach & Southern Railroad Company
3 - D	N. Landing Road across from Princess Anne Courthouse	West Neck creek	City of Virginia Beach	A series of walking trails has been constructed in the woods on the grounds of this historic home.
13 - D	Munden Point Road	North Landing River	City of Virginia Beach	Munden Point Park - Public park with picnic facilities and public boat ramp.
14 - D	Indian Creek Road	Northwest River	City of Chesapeake	Northwest River Park - Public park with picnic facilities, camping facilities, shoreline fishing,trails and walkways.
15 - D	Pungo Ferry Bridge	North Landing River	City of Virginia Beach	Highest overlook in Virginia Beach with exceptional views of North Landing River watershed.
16 - D	Battlefield Boulevard	Albemarle and Chesapeake Canal	Department of Game and Inland Fisheries/ City of Chesapeake	Great Bridge Locks Park has two public boat ramps and provides for fishing from the banks in addition to picnic facilities in the park.
17 - U	Blackwater Road	Pocaty River		Pocaty River is designate by the City of Chesapeake as part of their Scenic Waterways System. Potential designated canoe trails both up and downstream from put-in at Blackwater Road.

# Dev # Und	Location	Waterway/ Feature	Owner	Feature/ Facility
18 - D	Indian River Road, Princess Anne Road, Shipps Corner Road, etc.	West Neck Creek		West Neck Creek is designated as part of the Scenic Waterway System by the City of Virginia Beach and the State. It is also the first designated non-motor boat trail in the City, linking North Landing River and Lynnhaven Bay.
19 - D	Sandbridge Road	Back Bay Atlantic Ocean	US Department of Interior, Department of Fish and Wildlife	Back Bay National Wildlife Refuge has access to the Atlantic Ocean and to Back Bay. There is an environmental education center and many trails for hiking.
20 - D	Sandbridge Road	Back Bay Atlantic Ocean	Commonwealth of Virginia, Department of Conservation and Recreation	False Cape State Park is between the Atlantic Ocean and Back Bay. Camping facilities and hiking trails.
21 - D	Route 615	Back Bay North Landing River	US Department of Interior, Department of Fish and Wildlife	Princess Anne Management Area is a recent consolidation of several wildlife refuge areas. Education facility and trails.
22 - U	Blackwater Road	Blackwater Creek	Private	Potential designated canoe trail with access at Head of River Road and Blackwater Creek Store and Bradley's Landing.
23 - U	Pungo Ferry Road and Blackwater Road	Alton's Creek	Commonwealth of Virginia, Department of Conservation and Recreation	Potential canoe trail from new access and education trails at North Landing River Natural Area Preserve site off Blackwater Road to potential put-in at abandoned Pungo Ferry Road site.

# Dev # Und	Location	Waterway/ Feature	Owner	Feature/ Facility
24 - U	Indian River Road, Elbow Road	North Landing River		Potential canoe trail from Rosemont Forest Elementary School to main stem and at Salem Road on tributary.
25 - U	Indian Creek Road and Route 168	Northwest River	City of Chesapeake	Potential canoe trails either up or downstream from Indian Creek, adjacent to Northwest River Park.
26 - U	Sandpiper Road	Atlantic Ocean	City of Virginia Beach	Little Island Park provides ocean beaches for swimming and a picnic area near the Coast Guard Station.

3.3 Visual Considerations

The North Landing River has been designated a state and local scenic resource. The natural landscape of the marshes and forested swamps is not often encroached by development throughout the watershed. Because of the flat topography surrounding the waterway, vistas are long or are abbreviated only by vegetation which hugs the shoreline. The overall context of the watershed provides a marvelous natural setting and should be preserved to maintain the visual integrity of the region. Visual experiences can be categorized as from the land to the water or from the water to the land.

3.3.1 Land Views - River Crossings

Views from the land to the waters within the Southern Watershed are limited due to the relatively few numbers of bridge crossings and type of land adjacent to the shoreline. Most areas are generally surrounded by forested swamp which blocks the views; however, at each crossing of the river there is an opportunity to view the waterway. New bridges planned or old bridges replaced should provide opportunities to view the diverse waterways from the bridge structure and its approaches. To best achieve this, new bridges should be planned with open rail parapets to facilitate better views from the road to the water.

The most spectacular vantage point of the North Landing River is from the new Pungo Ferry Bridge crossing; however, the current bridge design does not allow either vehicular or pedestrian access. The existing bridge could be altered to accommodate a scenic pullout and pedestrian viewing area.

3.3.2 Land Views - Public Parks

Munden Point Park and Northwest River Park each offer a great deal of actual waterfront access to the park visitor. It is important to protect the visual integrity as it is viewed from these parks. This may be done through outright purchase of land or through visual or conservation easements placed on the properties adjacent to or across from these parks. The Virginia Outdoors Foundation accepts easements which limit the visual changes to significant properties.

3.3.3 Water Views

From the water, the viewer is most often able to see the marshes and wetlands surrounding the waterway. The viewsheds from the water vary depending upon the vegetation type closest to the river. Along the tributary waters, deciduous forested swamps come right to the water's edge, limiting the open view primarily to the channel and along the shoreline. This predominance of foreground views creates a closed corridor when boating these gentle waterways.

Both the North Landing and the Northwest Rivers have extensive marsh vegetation near their confluence. The height of the grasses and rushes allow much longer views extending from the water in the foreground to treed areas or farmland in the middleground and background view. The vistas from the

southern reaches of the North Landing actually allow for a foreground, middleground, and background setting.

Evidence of suburban or urban development is minimal along these waterways. Generally manipulation of the landscape is evident only at road crossings and the few high areas adjacent to the waterway. Travelling north up the North Landing River, Munden Point area is visually the most settled and developed from the waterway. In the northern section of the North Landing River, visual intrusions when travelling the waterway include existing residences. Farming activity is visually evident throughout the watersheds. Because of the extensive wetlands within the Southern Watershed there is little potential for construction to occur outside already developed areas.

Land management practices can have an effect on the visual experience. Areas which are cut for timber or developed for homes or businesses have a major visual impact. The pine bark beetle infestation within this region has effected logging related salvage of timber. Maintenance of buffers between the clear cut areas and the river's edge may help to mitigate the visual impact from the water.

3.3.4 Water Views - Crossings

Additional or changed river crossings impact the views from the water. For example, the new Pungo Ferry Bridge has an entirely different visual effect than the old swing span bridge. It's height makes it visible from a great distance and a visual focal point from the water. As new roadway bridges are constructed, aesthetic considerations should be incorporated into the bridge design.

The new Virginia Power powerline crossing at West Neck Creek could drastically change the visual character of this area. Power rights-of-way are generally cleared of all vegetation and kept in that condition for ease of access. Introduction of lower height native vegetation types in the right-of-way may help disguise the intrusion into the forest. Minimization of either land disturbance or vegetation removal should be a goal for utility crossing projects. The use of native plant materials for vegetative restoration could lessen the visual impacts and maintain a diversity of plant materials in the region.

4.0 RIVER SEGMENTS

4.1 North Landing River

(Figures 4.1A, 4.1B and 4.1C)

4.1.1 Location and Natural Resources

The North Landing River covers 22 miles in its north-south traverse, flowing southerly from Chesapeake and Virginia Beach into North Carolina and Currituck Sound. The river supports some of the most diverse and unspoiled wetlands in Virginia, characterized by extensive forested swamps, marshes, and pocosins. The river drains approximately 72,000 acres of land and the watershed is considered rural in character. The primary land use is agriculture with soybeans, field corn, and wheat being predominant crops. Residential, industrial, and commercial development have largely been concentrated along the northern fringes of the watershed but are moving southward. The Intracoastal Waterway follows the main stem of the river and is connected with the Chesapeake Bay through a canal and lock system in Chesapeake.

Natural area inventories of the watershed conducted by the Virginia DCR's Division of Natural Heritage have identified the wetlands of the North Landing River as an exemplary riverine ecosystem providing significant habitat for rare and endangered plant and animal species. The area is one of the most biologically diverse regions of the state supporting 50 rare species and four exemplary natural communities.

The wetlands along the northern section of the river are characterized by deciduous forested swamp. The swamp is dominated by bald cypress, black gum, black willow, and red maple. One of Virginia's largest heronries is found here. Hundreds of Great Blue Herons and Great Egrets roost and nest in the trees of this remote swamp and can be seen feeding along the extensive marshes of the river and in the shallow waters of Stumpy Lake. More elusive species of the swamp forest include the state endangered Canebrake Rattlesnake, the federally threatened Dismal Swamp Southeastern Shrew, Eastern Big-eared Bat, and globally rare plants such as Dwarf Trillium and Epiphytic Sedge.

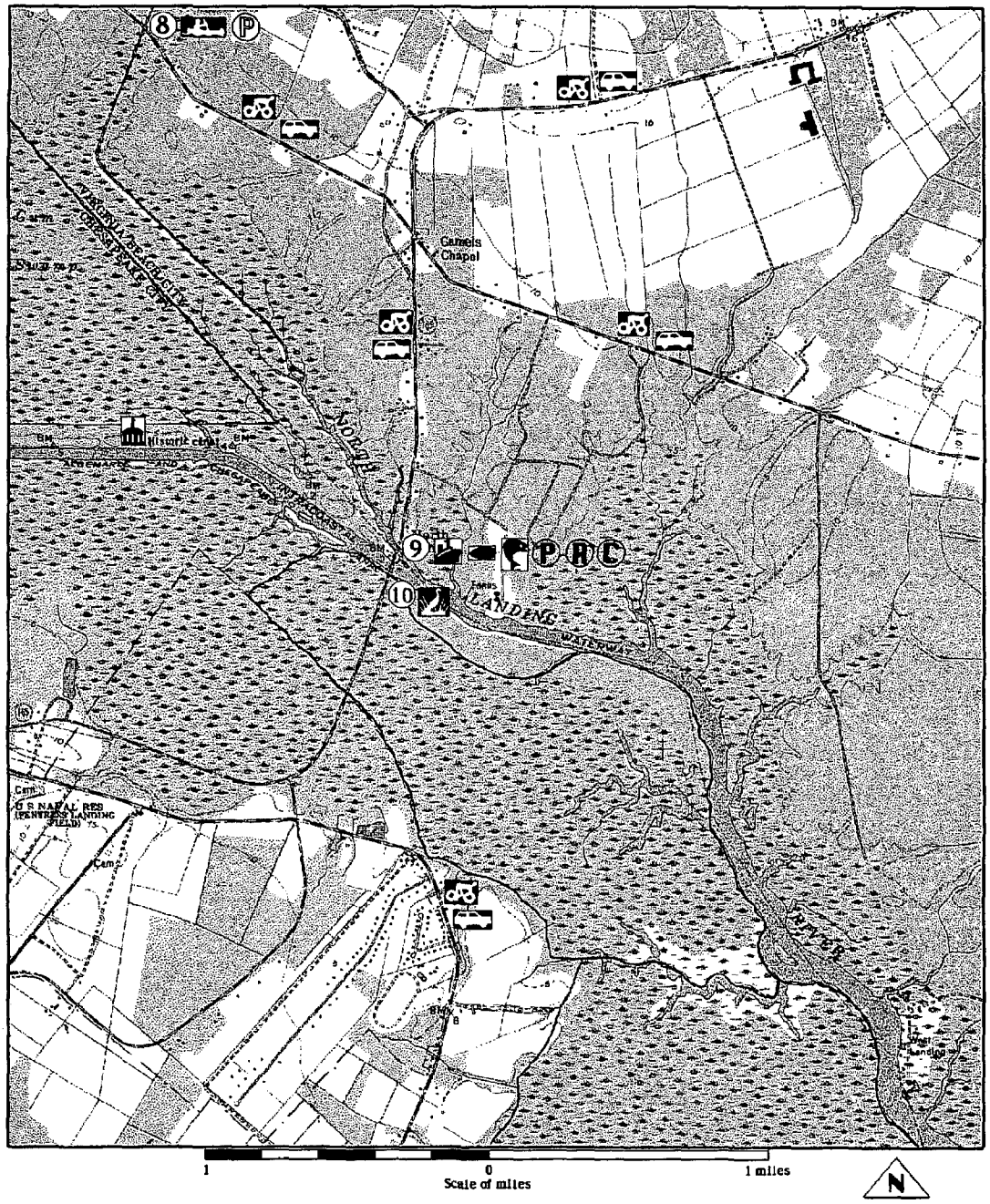
Marsh vegetation becomes more extensive as one travels southerly along the river. The marshes are fresh to slightly brackish and are influenced by the hydrologic regime of the river and wind tides. Prevailing winds from the south and east push sea water through Currituck Inlet and farther northward creating irregular water level fluctuations and influencing the development of marsh vegetation along the river. Cordgrass, needlerush, and sawgrass dominate along the water's edge. Southern cattails, bulrushes, and spikerushes are more characteristic of the interior marshes. Overall these marshes are quite diverse and over twenty rare or uncommon species have been documented from them. Many rare plants reach their northern range limits here, utilizing Currituck Sound as a corridor for movement northward.

In the interior of the wetland ecosystem, where peat deposits are deepest, pocosins and Atlantic white cedar swamps are found. Pocosins are considered an endangered community type in Virginia. These peatlands are characterized by knee-high shrubs in the heath family, greenbrier, rare orchids, and sedges. Trees are scattered, usually stunted, and include Atlantic white cedar, pond pine, sweet bay, and red bay. Delicate rarities such as spreading pogonia occur in the low herbaceous openings. These wetlands are referred to locally as "juniper bogs" because they once supported large stands of Atlantic white cedar. Today, less than 30% of this community remains in its natural state throughout the southeastern coastal plain of the U.S.. Much of what remains is threatened by fire suppression, ditching and draining for

Figure 4.1a

NORTH LANDING RIVER (N.section)

Public Access Plan & Visual Assessment: for the North Landing River Watershed



Access Sites:

⑧ Gum Swamp Bridge ⑨ Mercer Boat House ⑩ Old Landing, TNC Property

LEGEND

Existing:

- Bank Fishing
- Marina
- Historic Sites/Museums
- Boat Launch Sites
- Ⓟ Parking
- Ⓡ Restrooms
- Ⓒ Commercial Store/Restaurant

Potential:

- Canoe/Non-motorized Access
- Interpretive/Educational Opportunity
- Bicycle Routes
- Scenic Drives
- Ⓟ Parking

Property Ownership:

— The Nature Conservancy

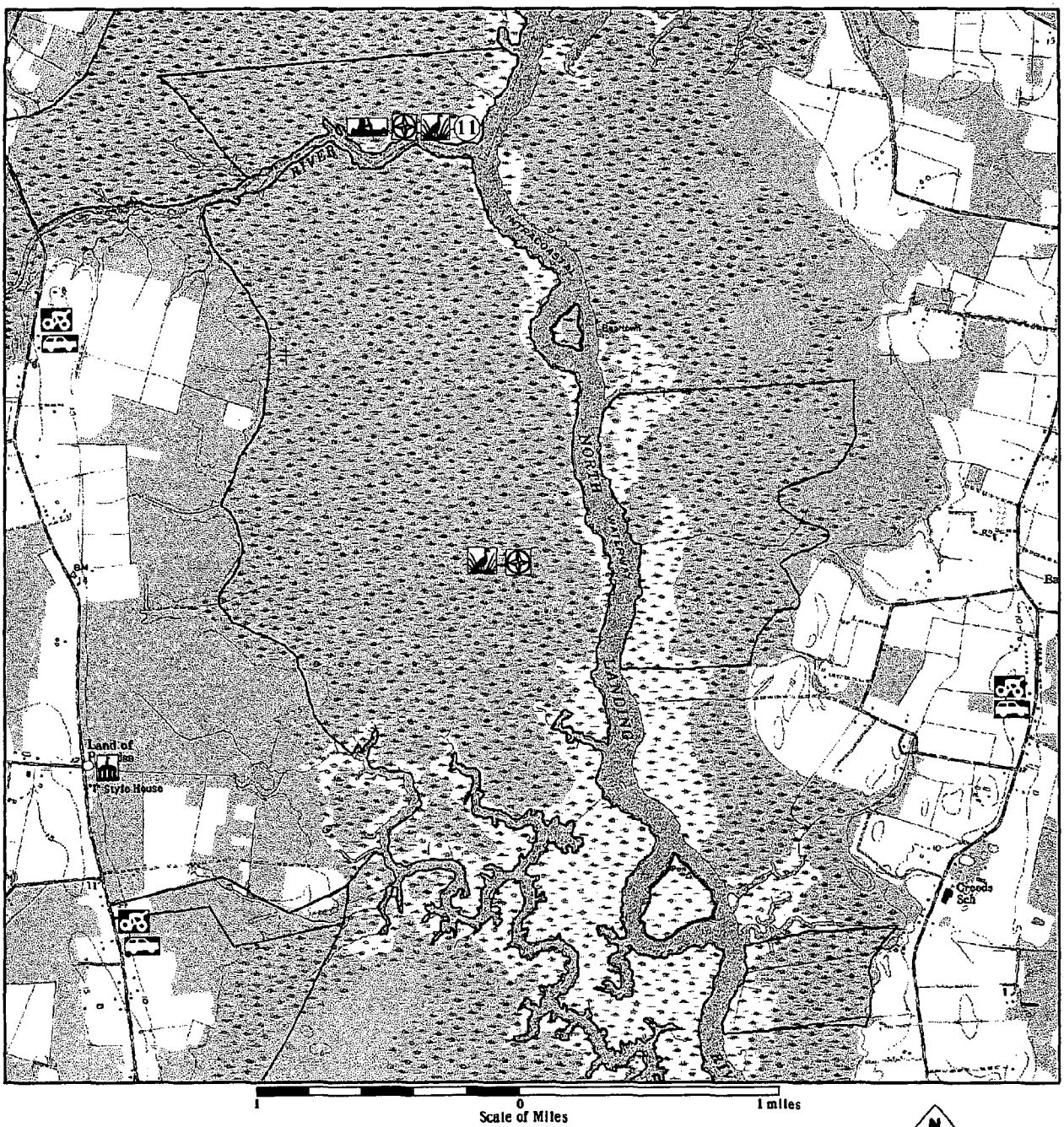
Note: Potential access sites 1 & 7 are not shown on this figure. See Figure 3.1

Department of Conservation & Recreation

Figure 4.1b

NORTH LANDING RIVER (Center section)

Public Access Plan & Visual Assessment: for the North Landing River Watershed



LEGEND

Access Sites:

(11) TNC Observation Deck

Existing:

Canoe/Non-motorized Access

Interpretive/Educational Opportunity

Viewpoint

Historic Sites/Museums

Potential:

Scenic Drives

Bicycle Routes

Property Ownership:

— Army Corp of Engineers

— Dept. of Conservation & Recreation

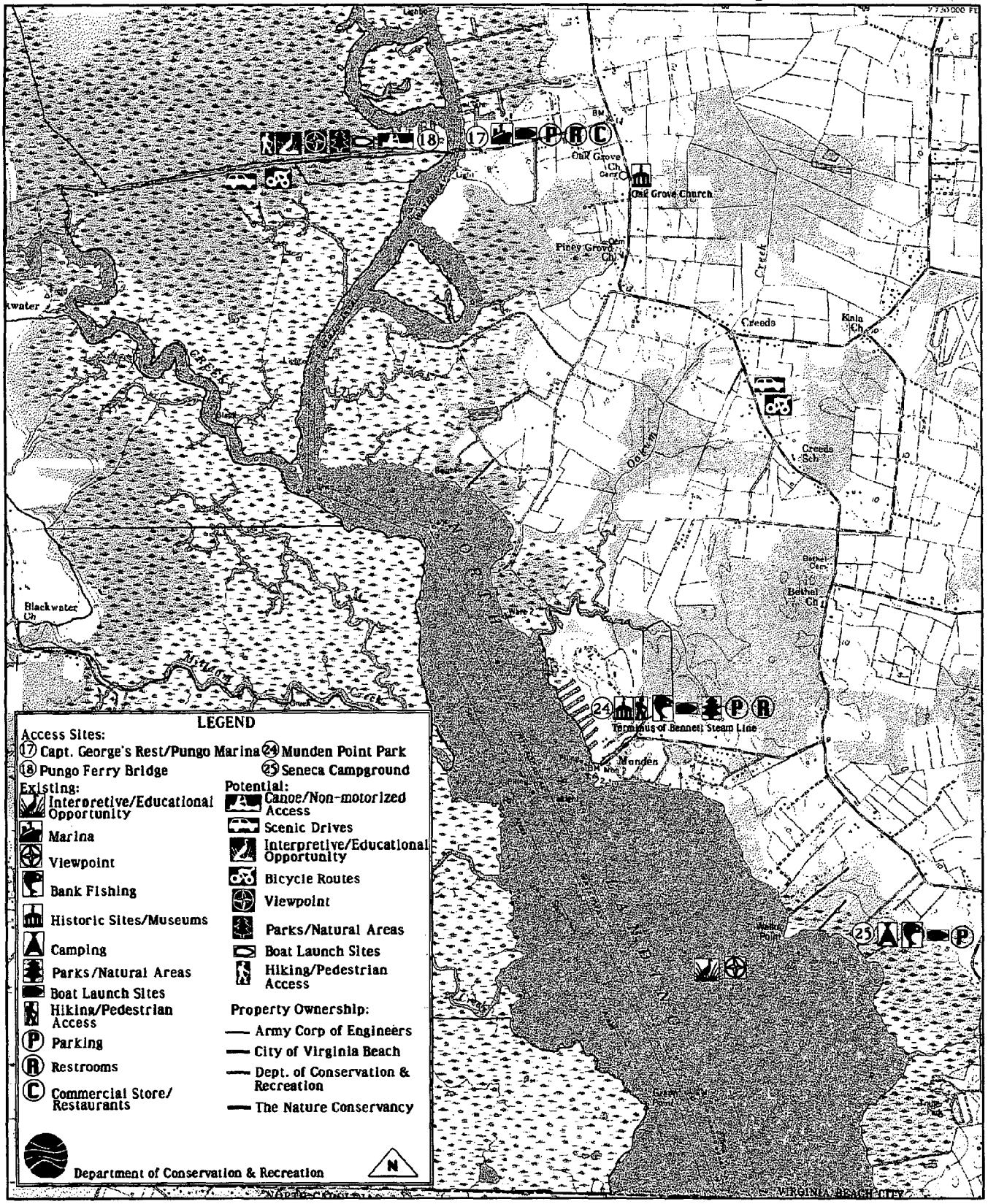
— The Nature Conservancy

Department of Conservation & Recreation

Figure 4.1c

NORTH LANDING RIVER (S. section)

Public Access Plan & Visual Assessment: for the North Landing River Watershed



alternative uses, or mining for valuable peat deposits. The best remaining pocosins in Virginia occur along the North Landing River north of Pungo Ferry Road.

4.1.2 Cultural Resources

The main branch of the North Landing River is 22 miles in length from the locks at Great Bridge (Figure 4.1a) in Chesapeake to the North Carolina border. This section of river demonstrates the determination and engineering accomplishments of earlier centuries. The northern section, from Blackwater Road to Great Bridge, is part of the Albemarle and Chesapeake Canal which was completed in 1859, just before the Civil War. Construction of this link between the Southern Branch of the Elizabeth River and North Landing River was accomplished by steam dredges. This route benefited the Princess Anne farmers in the Back Bay and Pungo districts. The Bennett Boat Line operated a steamer from Norfolk to Pungo for freight and passenger transport. Opening this link also allowed direct shipment of lumber from Currituck Sound to Norfolk via the waterway system.

Munden Point (Site 24, Figure 4.1c) is currently a park owned by the City of Virginia Beach. At one time, Munden Point was a central point to the shipping activity on the North Landing River. Warehouses and piers once stood along the shoreline and were used to load and off-load freight. After the completion of the Munden Point Line rail extension from Kempsville through Princess Anne Courthouse, Pungo, Creeds, and Back Bay to Munden Point, the Norfolk and Southern Company built warehouses at Munden Point and operated a steamship line which ran south to Currituck Sound, serving both passengers and timber interests. The railway also carried passengers heading to their hunt clubs in Back Bay.

The Oak Grove Baptist Church congregation, located on Princess Anne Road just south of Pungo Ferry Road, took that name just before the Civil War. The original congregation established itself in the area in 1764 and held their baptisms from a barge moored in the North Landing River. This is the second oldest Baptist congregation in Virginia and is considered the "mother" congregation in Virginia Beach. The current building was erected about 1900 and has had numerous improvements since that time.

4.1.3 Visual Assessment

The North Landing River is predominantly surrounded by flat terrain. This topography limits the viewshed both from the water to land and from the land to water based on the existing shoreline vegetation. From the headwaters to the North Carolina state line, the westernmost banks of the North Landing are predominantly protected conservation lands. The depth of these conservation properties from the water inland averages one mile. The width of land combined with the marsh vegetation, particularly the deciduous forested swamp in the upper reaches of the river, limit the sight distance both from the land and from the water. While the easternmost banks of the North Landing River do not contain as many protected conservation lands, there are few visual intrusions which significantly impact the visual quality along the river (Figures 4.1a, 4.1b & 4.1c). North of West Neck Creek the forested swamp forms only a narrow band along the river's shoreline. Consequently, there is some housing which can be seen in this part of the river (Figure 4.1a). Existing housing has not incorporated a buffer along the river. To maintain the high quality, visual experience in the northernmost part of the North Landing River it is recommended to provide at least a 100 foot buffer from the river's edge. Protective easements could be implemented to protect the viewshed from the river and maintain the viewshed of the forested swamp.

Because the type of marsh changes in the southern portion of the river, the visual impression of the river is varied. A visual change is perceptible as one travels south of the Pungo Ferry Road bridge

crossing of the North Landing River. The river widens and a feeling of openness increases as one progresses toward the North Carolina state line (Figure 4.1c). Again, in the southern part of the river corridor, the marsh adjacent to the river is narrower on the easternmost banks. Also, there are fewer protected conservation lands on this side of the river. This being the case, river corridor planning should establish development guidelines which not only protect the natural resources, but also conserve the visual integrity of this portion of the river.

4.1.4 Existing and Potential Access

There are eight existing access sites on the North Landing River. Canoe access is only appropriate on the North Landing River from its Headwaters to Mount Pleasant Road. On this northern portion of the river, there are three existing access locations. Sites 7 and 8, shown on Figure 4.1a, provide informal access for canoes. These sites could be improved as the roads and bridges are widened or replaced. Mercer Boat House, site 9 on Figure 4.1a, is located at the locks and serves primarily trailerable boats. However, this ramp can be used as a canoe take out.

As stated earlier, the North Landing River south of the locks at Mount Pleasant Road is part of the Intracoastal Waterway system which attracts large volumes of boating traffic year round. Non-motorized boats should not enter this waterway due to the significant hazards created by the Intracoastal Waterway boating traffic. A potential access site for intracoastal boaters could be developed at the old landing (Site 10, Figure 4.1a) located on TNC property in the upper part of the watershed near North Landing Road. Development at this site could include a water to land interpretive or educational stop for power boats. Picnicking and passive recreational opportunities could also be incorporated into the site development. While the TNC observation deck is located at the confluence of Pocaty River and the North Landing Rivers, it is not located in deep enough waters for most power boats.

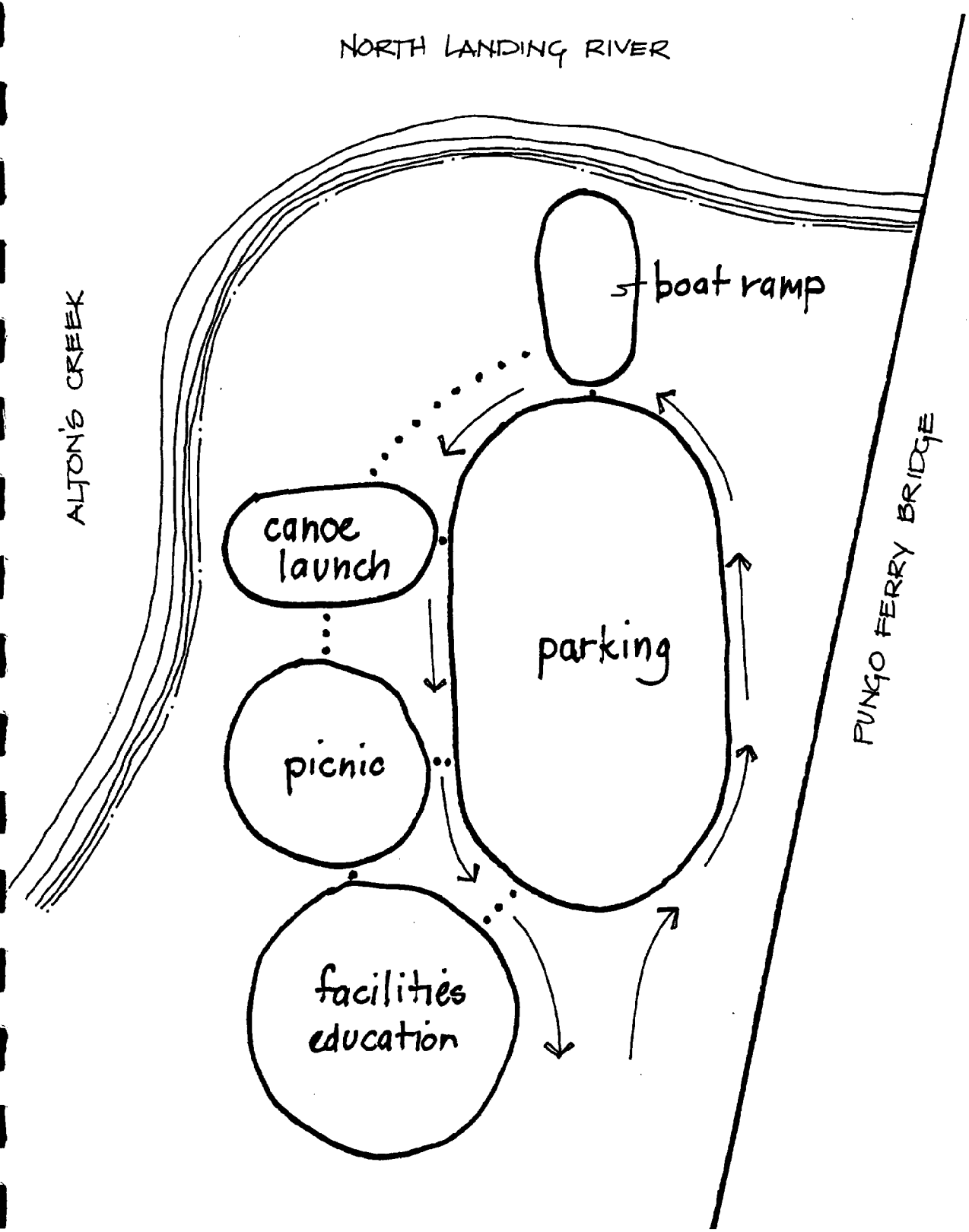
Photo 4.2a View of Pocaty River from the Nature Conservancy Observation Deck

Captain George's Restaurant and the Pungo Ferry Marina are collocated off old Pungo Ferry Road. These facilities offer power boats excellent water to land access in the central part of the watershed. Just across the water, the Old Pungo Ferry bridge site, if coupled with the adjacent property, could form a small water park which is easily accessible for all types of boating traffic. Sketch 4.1 on the following page shows a conceptual diagram of the potential development for this location. The 6 acres adjacent to the old bridge property should be considered for acquisition to enhance the functional development of this potential access area (Sketch 4.1). Grant funds could be pursued by the City of Virginia Beach in partnership with other agencies or private interest groups and businesses to purchase this property and make plans for appropriate access development at this location. Additionally, alterations to the new Pungo Ferry bridge, including a walkway hung beneath or beside the bridge, would provide an unprecedented view of the surrounding watershed and could enhance the use of the adjacent old bridge site for access. The Department of Game

Photo 4.2b View of Pocaty in Upper Reaches

and Inland Fisheries (DGIF) is looking for public access in the reaches of the North Landing River and is interested in working with localities to obtain appropriate boating access to these waters.

The City of Virginia Beach owns a park (Site 24, Figure 4.1c) in the southern part of the North Landing which is accessible from Munden Point Road. Munden Point Park offers restroom and picnicking facilities, active play areas and a boat ramp with ample parking for visitors and boaters. Just south of this park on Princess Anne Road, Seneca Campground provides a private boat ramp, bank fishing, picnic areas, swimming pool, recreation center, laundromat, camp store, and some 100 camping sites. The camping sites include primitive sites and others equipped with electrical and sewage hookups.



Sketch 4.1 North Landing River and Alton's Creek at Pungo Ferry Road

4.2 Pocaty River

(Figure 4.2)

4.2.1 Location and Natural Resources

The Pocaty River flows slowly eastward for approximately six miles to the confluence with the North Landing River. The wetlands bordering the upper reaches of the Pocaty River are predominantly deciduous swamp forest. Bald cypress, black gum, black willow, and red maple form dense stands here. Bald cypress thrives in this swamp forest as its knees and buttressed bases make it uniquely adapted to changing water levels. Freshwater and slightly brackish marshes form a narrow band along creek channels and along the river's edge at the confluence with the North Landing River.

4.2.2 Cultural Resources

The Stuart Ives House (Point 5 on Figure 3.2) at 1451 Blackwater Road was built in the early 1800's. It is a side passage, two room plan with a chimney at each end. The parcel, which fronts on Pocaty River, was purchased in 1671 from John Marshall by Timothy Ives. This 200 acre parcel grew to 530 acres and is believed to be part of the first 200 acre grant.

The Gresham House (Point 4 on Figure 3.2) which is at 1452 Blackwater Road, has been owned by the Ives family since 1884. The ridge on which it is located was once called Gresham Hill. In addition to the structure, there is a cemetery on the property for both Ives and Gresham ancestors. The federal style house was built between 1790 and 1830 and is extremely well-preserved and is considered a good candidate for the federal register.

At 3173 Land of Promise Road is an "I" house which was constructed between 1750 and 1780. One of the original eighteenth century fireplace with three flues is still in the house. A second was destroyed by lightning. Very few architectural changes have been made to this structure and it also would be a good candidate for the federal register.

4.2.3 Visual Assessment

The Pocaty River varies from very open at the mouth or confluence with the North Landing River to a very dense, closed corridor in its upper reaches (Photos 4.2a & 4.2b). Both the river's width and adjacent vegetation dictates this feeling of openness. West of Blackwater Road the river is narrow, approximately 20 feet or less. This narrow width and the minimal width of the surrounding wetlands makes this part of the river vulnerable to visual changes. Developing a management plan for the upper reaches of Pocaty River will be essential to maintaining the visual integrity of this narrow stream. While the lower part of the river includes TNC protected lands on both the northern and southern banks, some of the properties in private ownership could change the river's character significantly if appropriate management of land uses and mechanisms such as the establishment of buffer zones or visual easements are not pursued.

During the Spring 1993, this river was paddled by the study team to determine the status of the river's visual quality. At that time, the views from the river were very pristine. Since that time, a large portion of the timber resources on land adjacent to the river has been cut. It is likely that this timber cut affects the views from the river. The quality of the viewshed is dependent on the forestry practices used and the width of the buffer which remains along the river's shoreline. It is important to establish management practices for various land uses which will protect the integrity of the visual environment, particularly if ecotourism is introduced in this watershed.

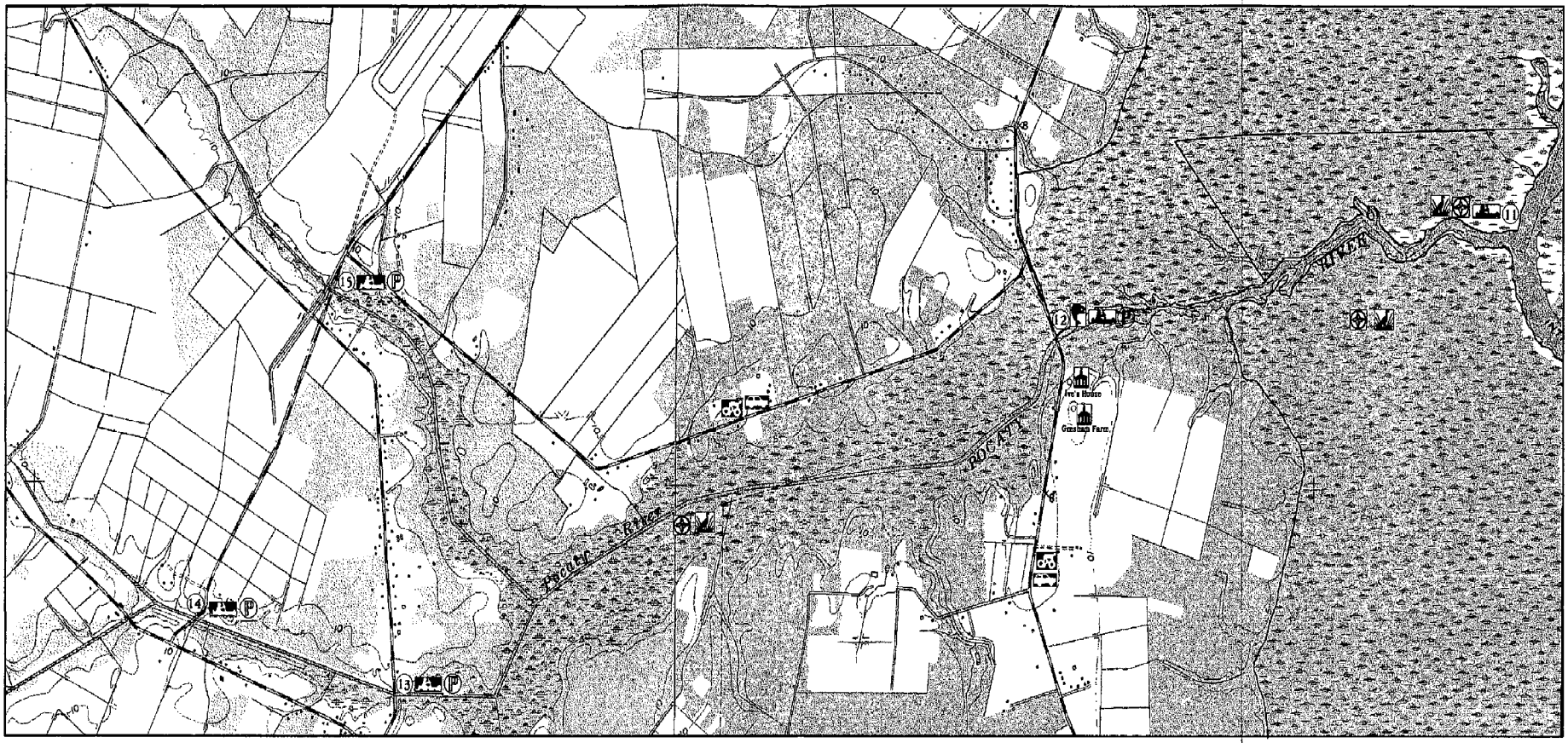


Figure 4.2

POCATY RIVER

Public Access Plan & Visual Assessment: for the North Landing River Watershed

LEGEND

Access Sites:

(11) TNC Observation deck
(12) Blackwater Road Bridge
(13) Long Ridge Road
(14) Fentress Airfield Road
(15) Fentress Airfield Road at Pocaty Road

Existing:

Canoe/Non-motorized Access
Interpretive/Educational
Viewpoint
Bank Fishing
Historic Sites/Museums

Potential:

Canoe/Non-motorized Access
Scenic Drives
Bicycle Routes
Parking

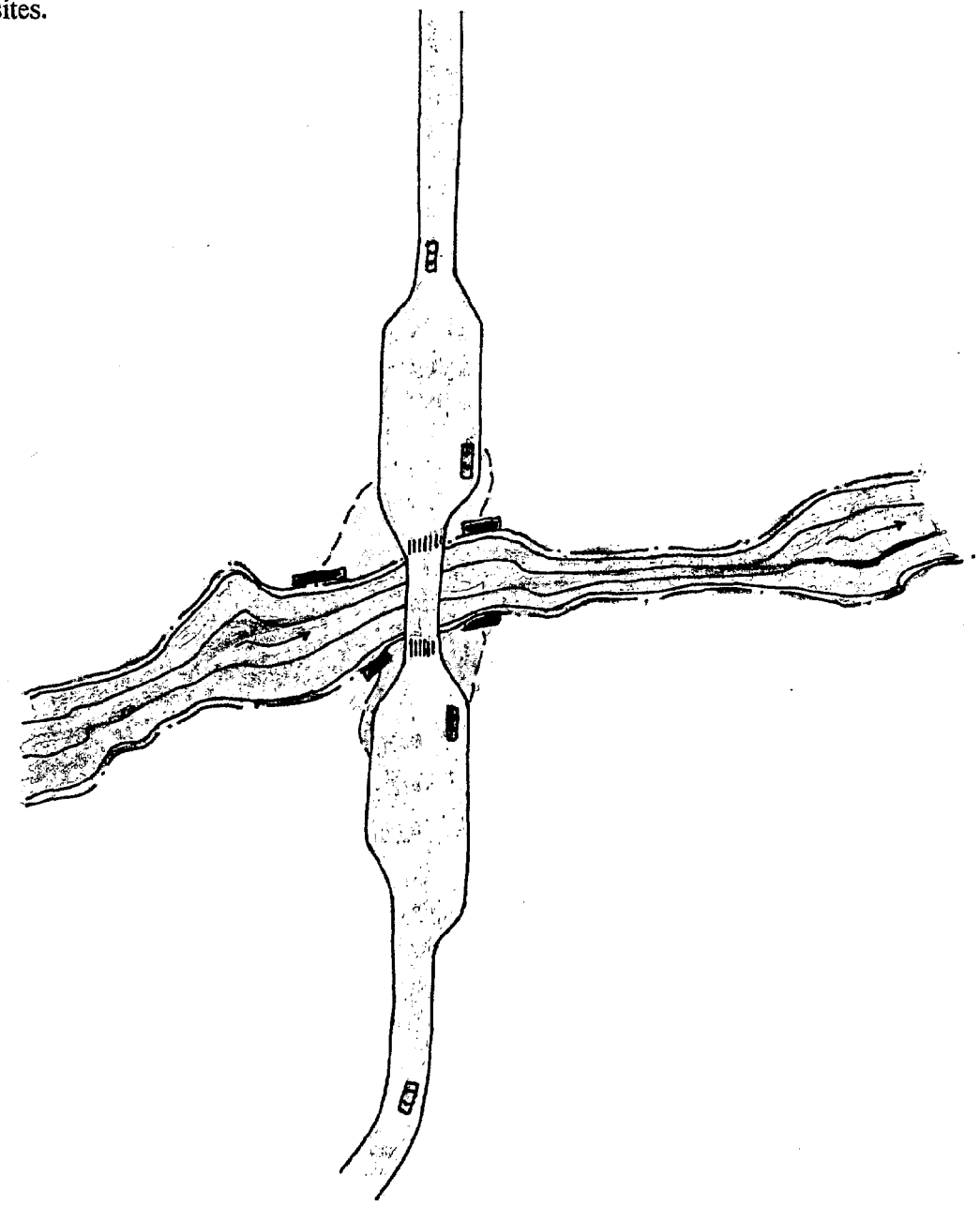
Property Ownership:

— The Nature Conservancy

Department of Conservation & Recreation

4.2.4 Existing and Potential Access

The crossing of Blackwater Road over Pocaty River (Site 12, Figure 4.2 & Sketch 4.2) offers the only active canoe put-in for Pocaty River. Few opportunities exist on the Pocaty to provide a canoe trail of substantial length without back tracking. This existing access is essential for individuals wishing to use the TNC observation tower located over 1.5 miles downstream at the confluence of Pocaty River with the North Landing River. The use of the TNC observation deck from Pocaty River will require a back track trip. Depending on the wind, water and currents as one nears the mouth of Pocaty River this trip may vary from easy to difficult. Sites 13, 14 and 15 on Figure 4.2 could be developed as non-motorized boat access when the roads are improved or bridges upgraded. Any of these access sites would open the upper portion of Pocaty River to canoeists, forming approximately 2.5 to 3.0 miles of canoe trail from Blackwater Road to one of these sites.



Sketch 4.2 Pocaty River at Blackwater Road

4.3. West Neck Creek

(Figure 4.3)

4.3.1 Location and Natural Resources

West Neck Creek is a major tributary located on the east side of the North Landing River. The wetlands of the creek south of Indian River Road are influenced by water level fluctuations resulting

Photo 4.3a Whitehurst/Buffington House

from wind tides. Numerous wetland communities are found here and provide marvelous opportunities to observe the gradient of wetland vegetation. Deciduous swamp forest occurs along the upper reaches of the creek. As one follows the creek southwesterly toward its confluence with the North Landing River, the wetlands gradually change into fresh and slightly brackish marshes, shrub swamps, and Atlantic white cedar swamps. A large stand of Atlantic white cedar occurs along the river just south of West Neck Creek and can be viewed best by boat from the eastern bank of the river. The wetlands support numerous rarities such as the epiphytic sedge, silky camellia, and the least bittern.

4.3.2 Cultural Resources

The Princess Anne Court House (Point 2 on Figure 3.2) at the Virginia Beach Municipal Center was built in 1823. This is the seventh courthouse built in what was originally Elizabeth City Shire of colonial Virginia. In 1637, the Shire was split and New Norfolk County was formed south of the James River. Lower Norfolk County built its first courthouse on Broad Creek in 1661. This was replaced with two courthouses in 1689, one on the Elizabeth River and one on the Lynnhaven River. In 1691, Princess Anne County was formed by the House of Burgess from the eastern third of New Norfolk County. In 1695, the courthouse was again relocated near the Old Donation Church on the Lynnhaven River. In 1735, the courthouse moved to the Ferry, then on to New Town, then to Kempe's Landing in 1751. In 1824, the court moved to Princess Anne Court House, its current location.

Figure 4.3

WEST NECK CREEK

Public Access Plan & Visual Assessment: for the North Landing River Watershed

LEGEND

Access Sites:

② Old Railroad Bed
③ Daniel Whitehurst House
④ Indian River Road Bridge
⑤ Tributary off West Neck Crk. Rd.
⑥ West Neck Creek Marina

Existing:

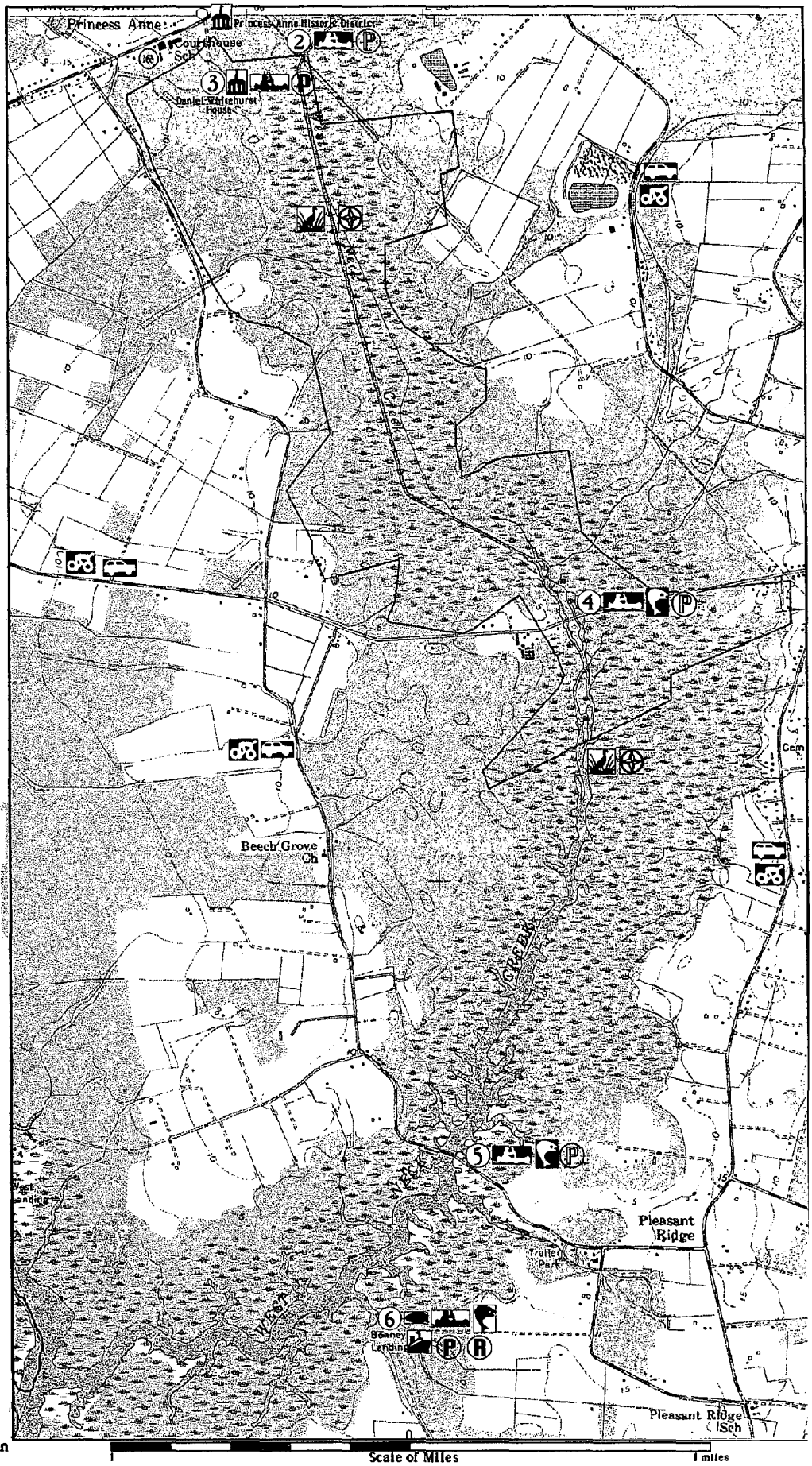
- Canoe/Non-motorized Access
- Interpretive/Educational Opportunity
- Viewpoint
- Marina
- Bank Fishing
- Historic Sites/Museums
- Boat Launch Sites
- Ⓟ Parking
- Ⓡ Restrooms

Potential:

- Canoe/Non-motorized Access
- Scenic Drive
- Bicycle Route
- Bank Fishing
- Ⓟ Parking

Property Ownership:

- The Nature Conservancy
- City of Virginia Beach



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Department of Conservation & Recreation

During the constitutional convention of 1867, Virginia established the county form of government. In 1870, Princess Anne County was divided into three districts, Seaboard, Pungo, and Kempsville. In 1906, the Town of Virginia Beach was chartered. In 1963, the two localities merged forming the City of Virginia Beach with its seat of government at the Princess Anne Court House. The Confederate Memorial Statue was dedicated on this site in 1905. It was sculpted by Charles Walsh of Petersburg, Virginia and donated by the Daughters of the Confederacy.

The Courthouse is located in the Princess Anne Historic District designated by the city. A number of historic homes are located in this district including the Daniel Whitehurst House (Point 3 in Figure 3.2 & Photo 4.3a) located directly across North Landing Road from Courthouse Drive. The Whitehurst house was built about 1793; the date is etched on a brick in the chimney. The original house was one room below and two small rooms above. The outside would have been clapboard with a gambrel roof and a sloping rear "saltbox" roof. Changes and enlargement to the original house started as early as 20 years after it was built. Eventually the clapboard was replaced with Flemish style brick. The interior mantels are original as are the chimneys. The house was acquired by the Buffington family in the 1930's and is currently owned by the City of Virginia Beach.

Photo 4.3b West Neck Creek at West Neck Creek Road

The son of Daniel Whitehurst married Amy Lovitt whose father owned the adjoining property. Her grandfather built another eighteenth century house which is still standing in the area. Located at 2402 Holland Road, the Thomas Lovett House (Point 1 in Figure 3.2) was built before 1790. There was a family

quarrel after which Amy's father Reuben, changed the spelling of his last name. The house had been added on to carefully on at least two occasions. This is another Dutch gambrel house with two stories. It has double chimneys on one end and a single one on the other.

The Venner House is also located in this district at the intersection of Holland Road and Princess Anne Road. It is believed that the central portion of the house dates to the 1790's as well. The William Nimmo House, 2477 Princess Anne Road, was built around 1790. His wife, Anne, gave the land where the Nimmo Church is built.

Nimmo United Methodist Church (Point 7 on Figure 3.2) was built in 1791 on property donated by Anne Nimmo on Princess Anne Road. During the Civil War, it housed federal troops and a hospital for their care. The church was rebuilt after the war on the original foundations; it included a "slave gallery" which is used as the choir loft.

4.3.3 Visual Assessment

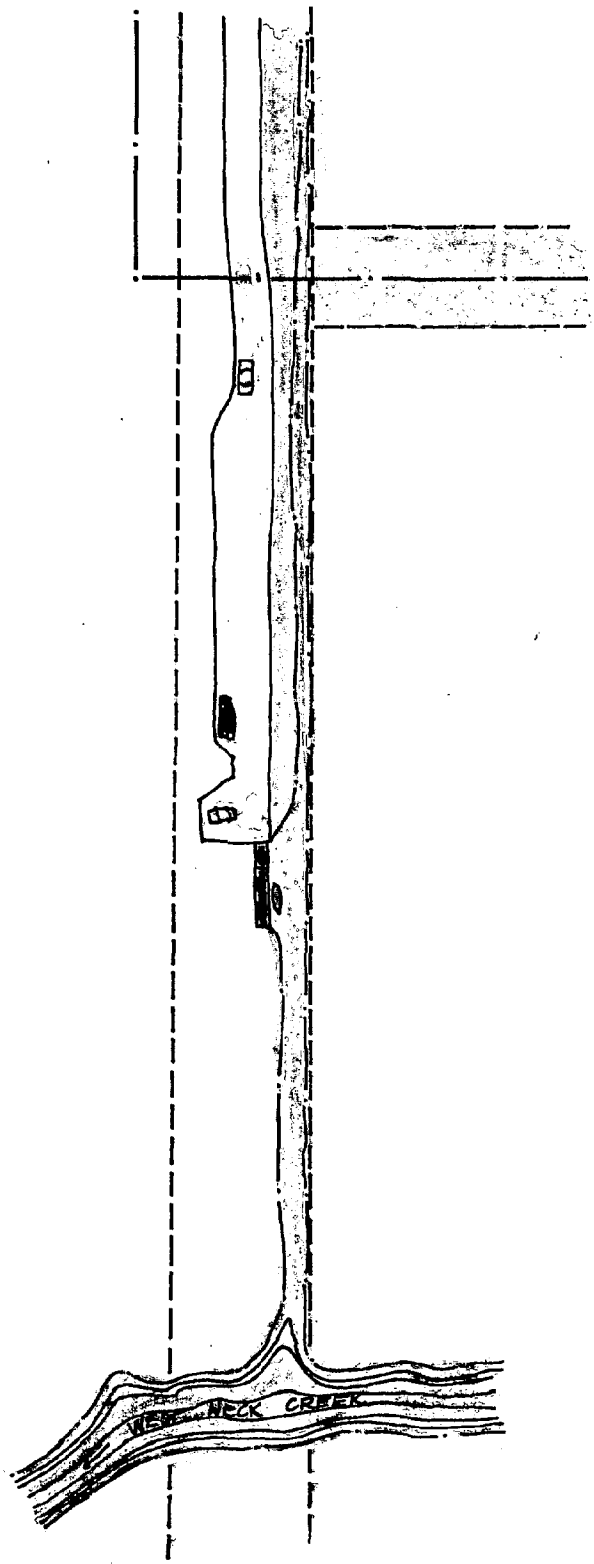
West Neck Creek is a part of the City of Virginia Beach Scenic Waterways system as well as designated a part of the State Scenic River. This waterway is canoed frequently by locals who enjoy the natural corridor associated with West Neck Creek. Canoe shuttles are offered periodically by outfitters to outdoors enthusiasts and persons anxious to have a natural experience along this popular canoe trail.

While this tributary of the North Landing River is very close to developments which exist and are expanding rapidly in this part of southern Virginia Beach, there is currently little visual evidence of the development. The upper portions of West Neck Creek give a very enclosed visual impression. Near the confluence with the North Landing River, the vegetation changes due to the brackish influences. South of West Neck Creek Road, the creek becomes more open reflecting the coastal marshes adjoining the creek banks. This area contains more bald cypress and includes the stands of Atlantic White Cedar.

Efforts need to be made by the City of Virginia Beach and developers of the West Neck Creek Corridor to protect and buffer the creek from intrusions which could destroy the natural setting so popular along this waterway. Also, there is evidence in some of the tributaries entering the upper reaches of the creek that large amounts of siltation is entering the creek. It is presumed that this erosion and sedimentation problem is caused by developments upstream and along the tributaries entering West Neck Creek. The extreme amount of sedimentation observed near the Princess Anne Road and Courthouse area could over a period of time alter the vegetation in the stream.

4.3.4 Existing and Potential Access

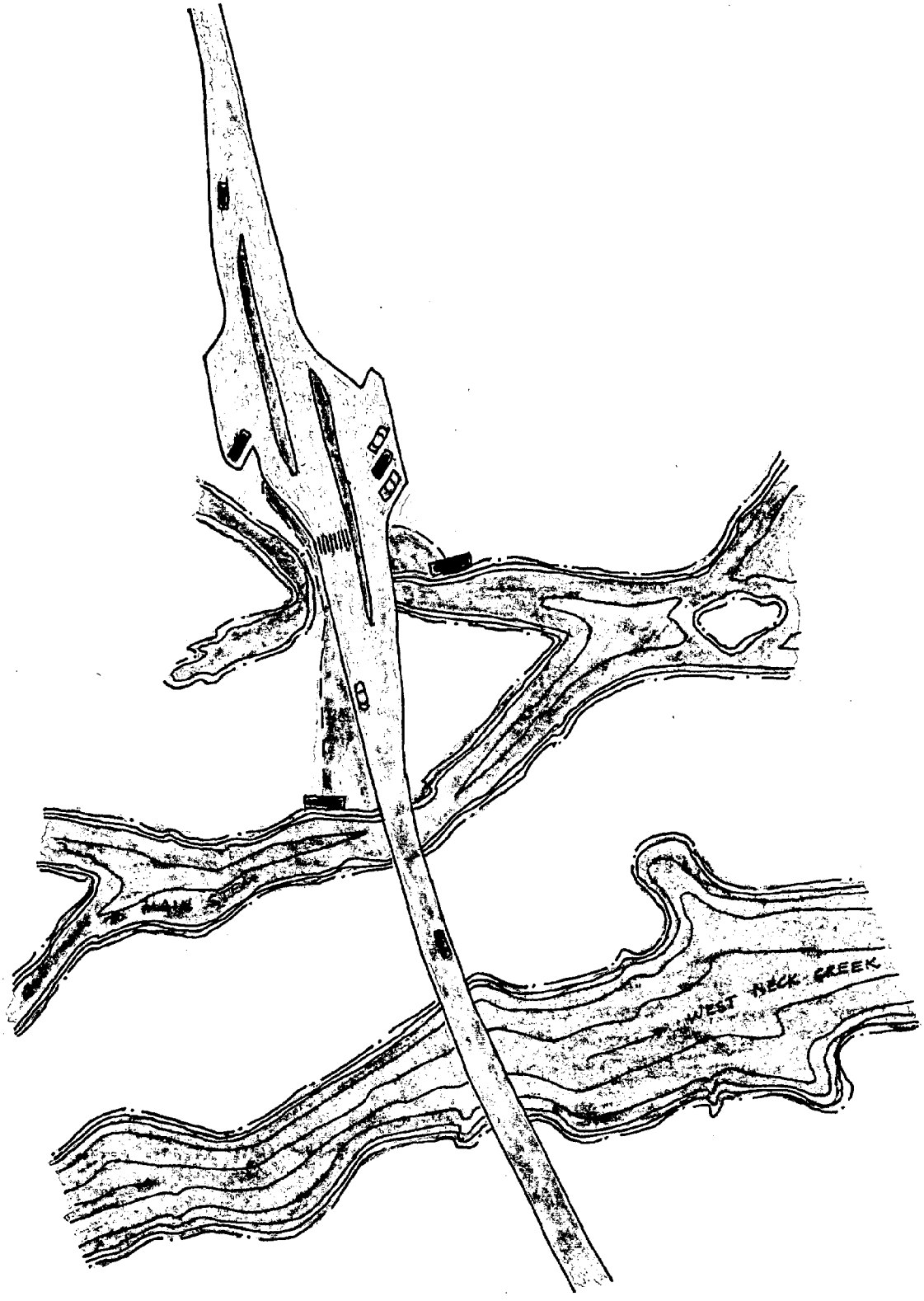
An existing canoe trail along West Neck Creek extends from Princess Anne Road (Site 1, Figure 4.3) to the West Neck Creek Marina (Site 6, Figure 4.3). Additional access at North Landing Road north of Princess Anne Road could extend this canoe trail. Additional take out points at Indian River Road bridge (Site 4, Figure 4.3 & Sketch 4.3a) or near West Neck Creek Road bridge (Site 5, Figure 4.3 & Photo 4.3b) would provide a publicly owned take out. An informal access for canoeists and anglers existed at the West Neck Creek Road bridge until it was replaced in 1992. Now that the new bridge is in place and the old site has been converted to a wetlands mitigation site, access at this location will need to be placed at a nearby tributary to West Neck Creek. Because the access site at West Neck Creek Road was such a



Sketch 4.3a West Neck Creek Park

popular informal site, it is essential that when the Indian River Road bridge is replaced, that plans for informal access and parking for approximately three cars also be provided.

Other opportunities along West Neck Creek include the use of the Buffington House (Site 3, Figure 4.3 & Photo 4.3a) as a potential historic destination point with a variety of interpretive or educational opportunities developed to complement the courthouse area and to attract visitors to this part of the City. Seasonal access to West Neck Creek is available from the Buffington property along a small tributary. Since parking would not be a problem at this site, the use of the site for educational access by schools and canoe groups would be appropriate. Also, further downstream, the old railroad bed (Site 2, Figure 4.3 & Sketch 4.3b)) could become a trail leading to the creek's edge. Perhaps this trail could link with other trails and become a spur in the City's Greenways and bicycle plan. An ISTEA Enhancement proposal for development of this trail has been submitted for a "Pungo - Park Connector Trail". This proposal (Appendix A) improves the status of greenway connections in this part of the City of Virginia Beach.



Sketch 4.3b West Neck Creek at Indian River Road

Photo 4.4a Alton's Creek from the North Landing River Natural Area Preserve

Photo 4.4b Alton's Creek Potential Canoe Access on the North Landing River Natural Area Preserve

Photo 4.4c Alton's Creek Canoe Experience

Photo 4.4d Alton's Creek from the North Landing River Natural Area Preserve

4.4 Alton's Creek

(Figure 4.4)

4.4.1 Location and Natural Resources

Alton's Creek is located along the west side of the North Landing River, just north of Pungo Ferry Road. The creek channel is wide and contains old oxbows and numerous meanders along its 4 1/2 miles length. The area provides tremendous views of emergent marshes, shrub swamps, wildlife, and waterfowl. Wood ducks are frequently sighted in the marshes along with delicate rarities such as elongated lobelia and sweet scented lady's tresses. Beyond the robust marsh vegetation, one may catch a glimpse of the rare pocosin community supporting scattered pond pine and Atlantic white cedar.

4.4.2 Visual Assessment

Alton's Creek is an open coastal tributary (Photos 4.4a, 4.4b, 4.4c & 4.4d). The openness and winding character gives this creek a sense of visual vastness. The adjoining tidal marshlands allow extended views over the waterway. In fact, when traversing this winding stream, the glimpses of the North Landing River and landmarks along its waterway often serve as predominant focal points. For example, at several points along the creek, the grain silos located off Princess Anne Road on the easternmost shore of the North Landing and the new Pungo Ferry bridge provide a visual point of reference. Depending on proximity to the Pungo Ferry Bridge, this structure predominates the landscape from the water. Alton's Creek is visually open almost to its headwaters which are just beyond Site 16 on Figure 4.4. This stream provides tranquil views of the natural landscape with virtually no interruptions due to obvious human activity on the land.

4.4.3 Existing and Potential Public Access

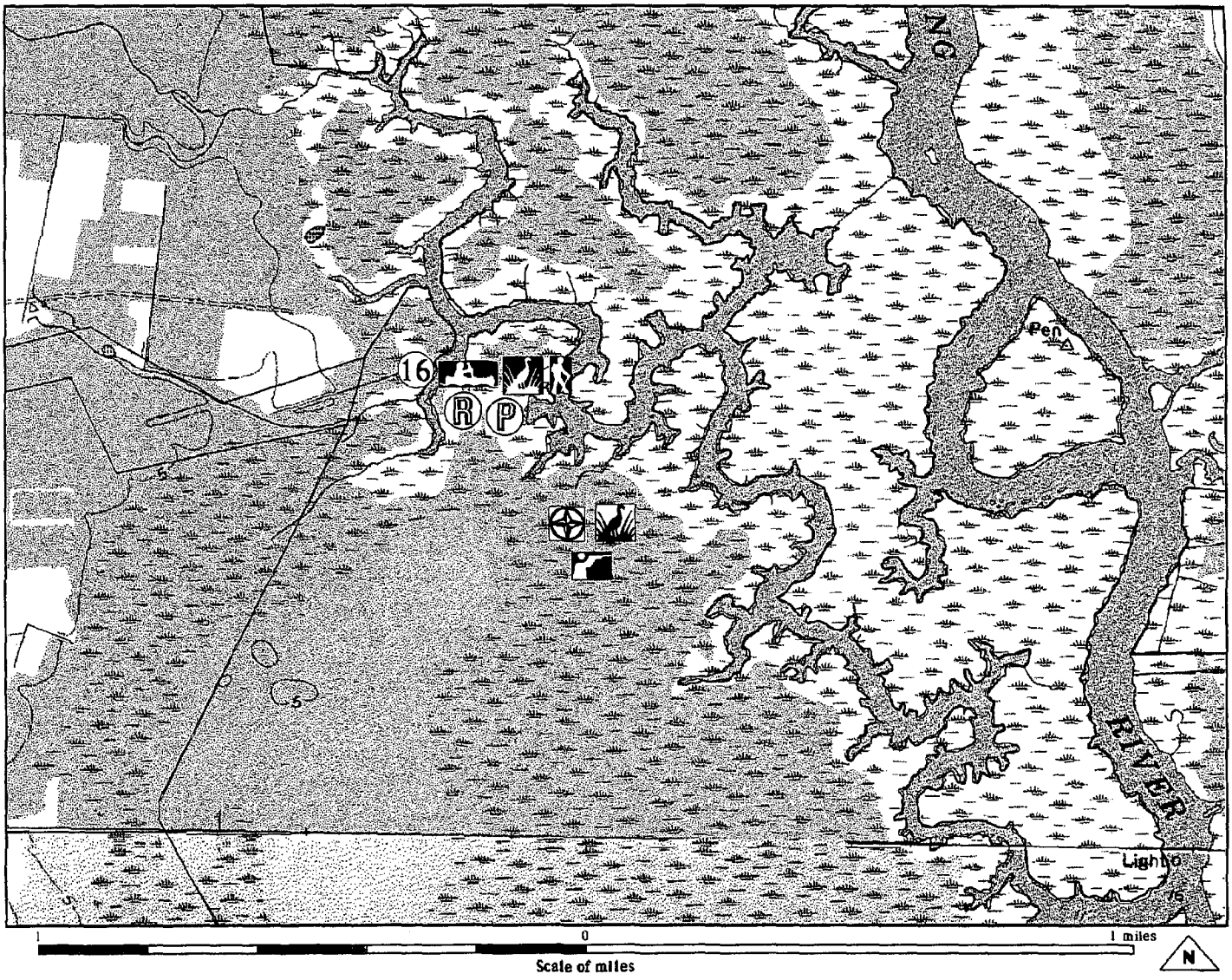
Existing access from the land to Alton's Creek is not available. With DCR's purchase of the Kellum tract (Site 16, Figure 4.4) adjacent to the NLRNAP it is anticipated that canoe access will be developed at this location. Appendix B includes the environmental impact report for the development of this property for canoe access and trail development. Because the site is within a natural area, special design considerations which deviate from traditional recommendations typical for recreation areas are proposed. For example, the installation of a 12 foot gravel road are proposed in place of wider, hard surfaced parking and roads. Also, while the canoe access trail is long in comparison with recommended standards, its location minimizes the amount of wetland disrupted and canoe rest points have been designed into the walkway to allow canoeists a more comfortable hike.

As mentioned earlier, the City of Virginia Beach could also develop the old Pungo Ferry Bridge site (Site 18, Figure 4.4) into an access point for both Alton's Creek and the North Landing River. The development of these two sites will provide excellent recreational opportunities for non-motorized boats on this stream and for interpretive opportunities to occur adjacent to the NLRNAP. The addition of canoe access at these two sites will offer a 1/2 day, novice canoe trail. The size of the sites and their location make them especially attractive for a shuttle or even a canoe concessionaire operation during peak use times.

Figure 4.4

ALTON'S CREEK

Public Access Plan & Visual Assessment: for the North Landing River Watershed



LEGEND

Access Sites:

(16) North Landing River Natural Area Preserve

Existing:

Interpretive/Educational Opportunity

Viewpoint

Property Ownership:

— Dept. of Conservation & Recreation

— Army Corp of Engineers

— The Nature Conservancy

Potential:

Canoe/Non-motorized Access

Interpretive/Educational Opportunity

Hunting

Hiking/Pedestrian Access

(P) Parking

(R) Restrooms

Department of Conservation & Recreation

4.5 Blackwater Creek

(Figure 4.5)

4.5.1 Location and Natural Resources

Blackwater Creek forms another major tributary to the North Landing River on the west. The creek channel is wide and gently meanders for 6 miles to the confluence with the river. The uppermost reaches of the creek west of Blackwater Road support a picturesque swamp forest of bald cypress, black gum, red maple, black willow, and loblolly pine. East of Blackwater Road, the creek contains extensive freshwater and slightly saline marshes which grade into shrub swamps, then forested swamps of red maple, pond pine, and bald cypress. The marshes here are quite diverse and support many rare species. Elliot's aster, sawgrass, and elongated lobelia are but a few of the southern species reaching their northern range limits here. The creek has numerous side channels and meanders providing excellent opportunities for nature observation.

4.5.2 Cultural Resources

The Blackwater Trading Post is located at the creek as a point of reference. It was built between 1890 and 1900 and was originally Mansfield's Store. It has been used by hunters and fishermen and has a boat ramp.

4.5.3 Visual Assessment

Visually, Blackwater Creek along with West Neck Creek may be the most interesting of the North Landing River tributaries. There is a distinct difference in the bald cypress swamp located in the uppermost reaches of the river from the tidal marshes east of Blackwater Road in which their character is established by the vast stands of marsh grasses. The Creek is winding, particularly west of Blackwater Road, which adds to its visual interest. Also, few visual intrusions related to human activities interrupt the natural environment which creates this attractive landscape. East of Blackwater Road, TNC owns a large tract of land located along the south shoreline of the Creek. Opposite this property on the northern shoreline is the NLRNAP. Both of these conservation lands protect the visual integrity of the Blackwater Creek east of Blackwater Road. Protection mechanisms west of Blackwater Road could be established to insure the retention of the scenic bald cypress swamp. Landowners could place visual easements on their properties in this corridor. These easements would not limit development, but would protect the quality of the view both from the water and for the property owners.

4.5.4 Existing and Potential Access

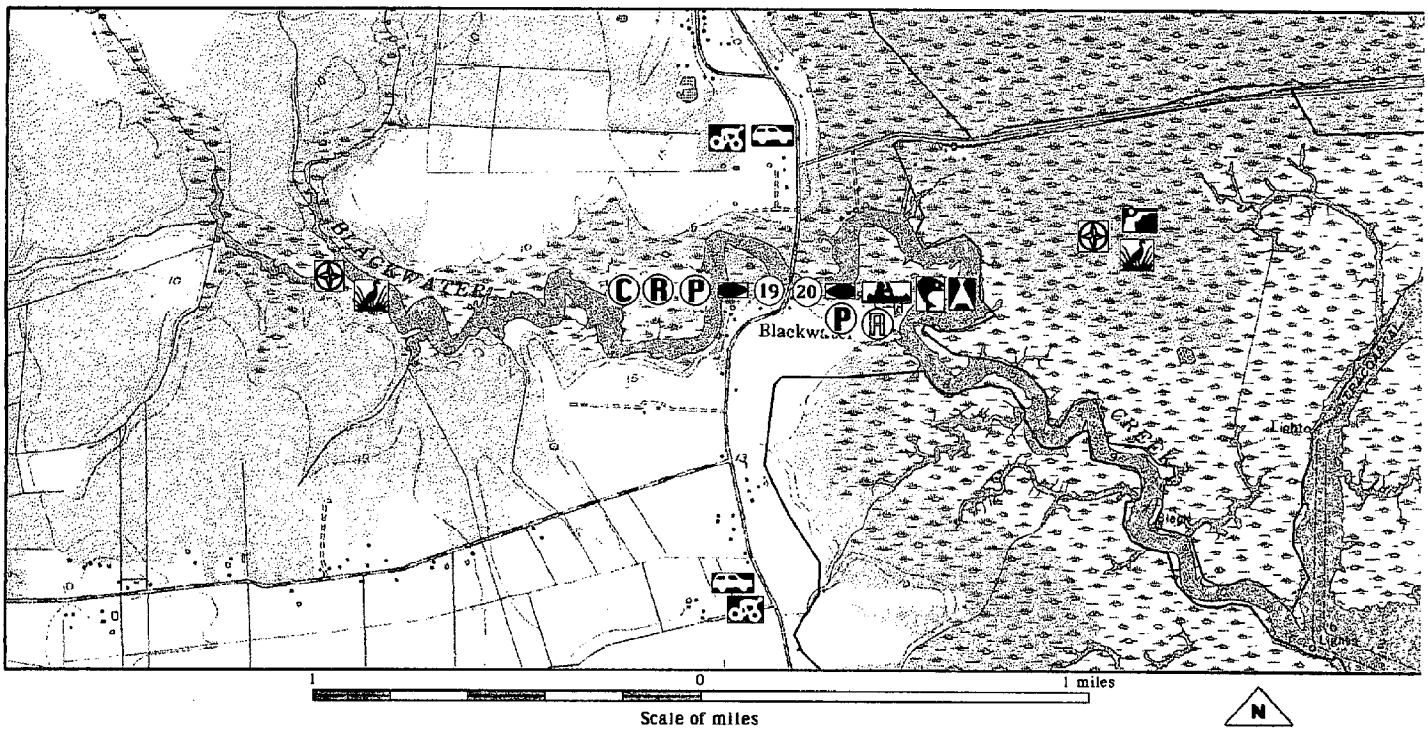
From an access perspective, the Blackwater Creek is similar to the Pocaty in that one central access point is available. In fact, access to Blackwater Creek is available at the Blackwater Road bridge crossing over Blackwater Creek (Sites 19 & 20, Figure 4.5). Additional take out points need to be improved upstream to provide a two to three hour canoe trail. The use of Head of River Road as a take out (Site 21, Figure 4.5) is conducive for a one mile trip upstream in a non-motorized boat.

A potential canoe trail has been identified on Blackwater Creek between Head of River Road and Blackwater Road. Sketch 4.5 shows how potential access could be developed at Land of Promise Road at Blackwater Creek. This waterway is well-suited to novice canoeists because it has very little current, minimal wind tides, limited motorized boat traffic and no obstructions in the channel. The paddling length, one way, is under two miles between these two points. With minimum improvements, a vehicle pull out and water access could be provided at the Head of Creek Road crossing.

Figure 4.5

BLACKWATER CREEK

Public Access Plan & Visual Assessment: for the North Landing River Watershed



LEGEND

Access Sites:

- (19) Blackwater Creek Store
- (20) Bradley's Creek Landing

Existing:

- Canoe/Non-motorized Access
- Interpretive/Educational Opportunity
- Viewpoint
- Bank Fishing
- Boat Launch Sites
- (P) Parking
- (R) Restrooms
- (C) Commercial/Store/Restaurant
- Department of Conservation & Recreation

Potential:

- Scenic Drives
- Bicycle Routes
- Hunting
- Camping
- (R) Restroom

Property Ownership:

- — Department of Conservation & Recreation
- — The Nature Conservancy

Note: Potential access site 21 at Head of River Road is not shown on this figure. See figure 3.1

Bradley's Landing at Blackwater Road has enough high land that approximately 20 cars could be parked. A concession for renting canoes could be established with a "ferry" service to the upstream put in at Head of River Road for one way trips.

Sketch 4.5 Blackwater Creek at Head of River Road

4.6 Milldam Creek

(Figure 4.6)

4.6.1 Location and Natural Resources

Milldam Creek is a smaller tributary along the west side of the North Landing River just two miles north of the Virginia and North Carolina state line. The creek gently meanders for 2 1/2 miles easterly to the confluence with the river. The upper reaches of the creek are quite shallow and the narrow creek channel meanders through a bald cypress swamp. East of Blackwater Road the creek channel widens and extensive marshes are found gently grading into forested swamps of pond pine and red maple. Similar to the wetlands along Blackwater Creek, the marshes are quite diverse and support numerous rare species and waterfowl.

4.6.2 Cultural Resources

The Blackwater Southern Baptist Church is located at 6000 Blackwater Road at the Mill Dam Bridge. It was constituted in 1774 as the Blackwater Baptist Church as an offshoot of the Pungo Baptist Church. This site was purchased in 1856 from Henry R. Whitehurst; the church was erected in 1860. Additions were made in the 1950's and 1960's.

4.6.3 Visual Assessment

The marshes of Milldam Creek make it similar visually to Blackwater Creek. Little development exists adjacent to this stream making the views true to the natural environment with little intrusion from man-made landscapes.

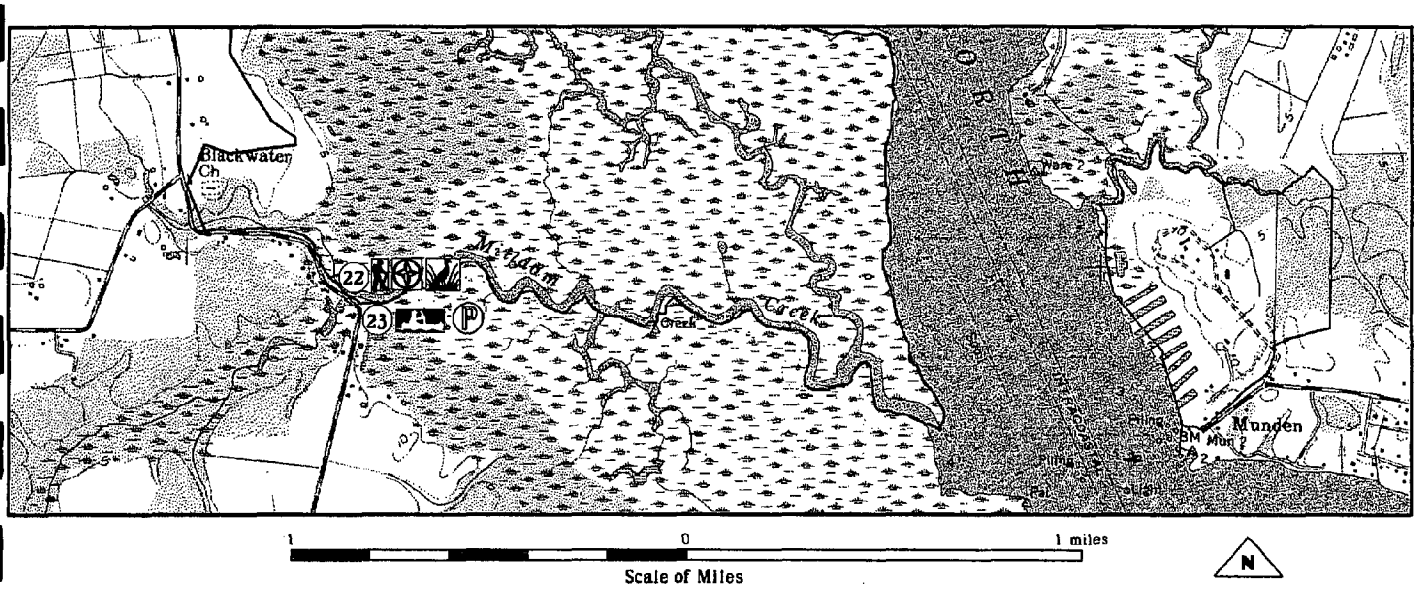
4.6.4 Existing and Potential Public Access

Milldam Creek currently does not have any developed canoe access points. The boardwalk constructed by TNC (Site 22, Figure 4.6) offers interpretive and educational opportunities. This facility is open based on volunteer support by TNC members. A possible canoe access could be developed on Milldam Creek at Head of River Road (Site 23, Figure 4.6). This access could offer informal parking for two to three cars depending on the right-of-way in public ownership or additional land acquired for public access.

Figure 4.6

MILLDAM CREEK

Public Access Plan & Visual Assessment: for the North Landing River Watershed



LEGEND

Access Sites:

㉒ TNC Boardwalk

㉓ Head of River Road

Existing:

Interpretive/Educational Opportunity

Viewpoint

Hiking/Pedestrian Access

Property Ownership:

— The Nature Conservancy

— City of Virginia Beach

Potential:

Canoe/Non-motorized Access

Ⓟ Parking

Note: Potential access site 26 at Craigs Causeway Road on a tributary of Milldam Creek is not shown on this figure. See Figure 3.1.

Department of Conservation & Recreation

4.7 Northwest River

(Figure 4.7)

4.7.1 Location and Natural Resources

The Northwest River flows 13 miles in a southeasterly direction across the City of Chesapeake from Great Dismal Swamp to the confluence with the North Landing River at Tull's Bay in North Carolina. The river basin is rural in character with more than half of the area covered by undisturbed wetlands and forest land. Agriculture is the dominant land use throughout the remainder of the basin. The river provides an important source of drinking water for the City of Chesapeake.

The Northwest River supports a diversity of wetland communities and is most noted for its exemplary wind tide marshes and deciduous swamp forests. Along the upper reaches of the river, the forested wetlands are dominated by bald cypress, water tupelo, loblolly pine, sweet gum, and red maple. The wetlands are extensive and serene and provide an enjoyable canoeing experience. This swamp forest also provides important habitat for rare species such as the federally threatened Dismal Swamp southeastern shrew.

On slightly elevated islands within the swamp forest occur unusually diverse forest communities characterized by American beech, swamp white oak, southern red oak, red maple, and loblolly pine. These forested islands were never cleared for agriculture, and although they have been logged in the past, recovery of vegetation is complete and may represent presettlement vegetation. These forests are unusually rich in woody species including 13 tree species, 8 shrubs, and 3 woody vines. The rare shrub silky camellia also occurs here.

Photo 4.7 Northwest River Park

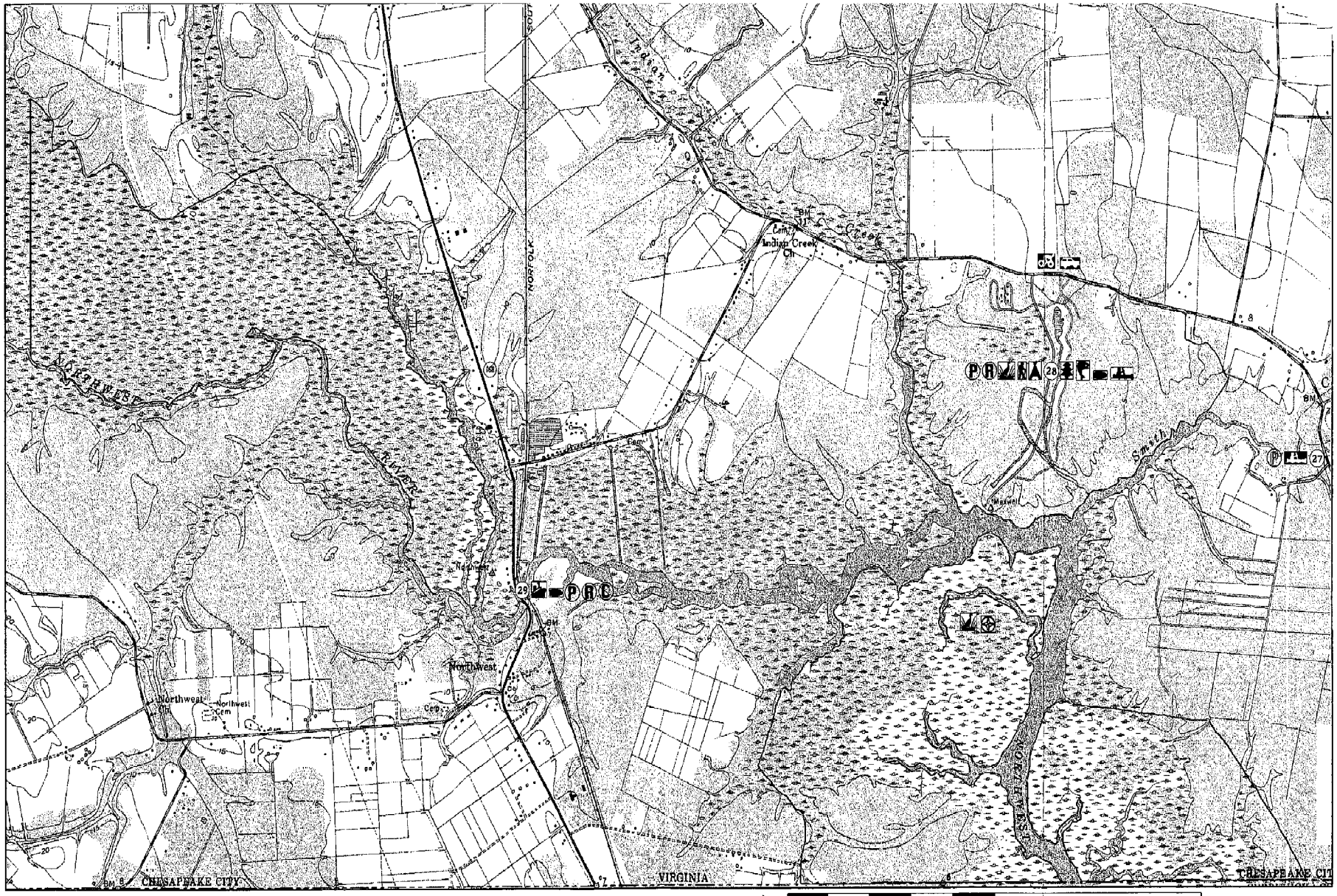


Figure 4.7

NORTHWEST RIVER

Public Access Plan & Visual Assessment: for the North Landing River Watershed

Access Sites:

(28) Northwest River Park

(29) Bob's Fishing Hole

Note:
Potential access site 27 at Baum & Indian Creek roads is not shown on this figure. See Figure 3.1

Existing:

- Interpretive/Educational Opportunity
- Marina
- Viewpoint
- Bank Fishing
- Camping
- Parks/Natural Areas
- Boat Launch Sites
- Hiking/Pedestrian Access
- Canoe/Non-motorized Access
- Bicycle Routes
- Scenic Drives

Property Ownership:

- Dept. of Conservation & Recreation
- City of Chesapeake

Department of Conservation & Recreation

Extensive freshwater and slightly brackish marshes occur along the lower reaches of the river. These marshes, like those of the North Landing River, are quite diverse and support large concentrations of rare species. The wetlands are influenced by the hydrologic regime of the river and wind tides. Cordgrass, needlerush, and sawgrass dominate along the water's edge. The interior freshwater marshes often support tall robust vegetation such as cattails, bulrushes, and spikerushes. This community grades into low marshes dominated by beaked spikerush, pipeworts, and twigrush. Over twenty rare plants have been recorded from these marshes and several rare animals occur here including the little grass frog, carpenter frog, and scarce swamp skipper.

The waters of the Northwest River support a rich fishery. Preliminary sampling by the Virginia Department of Game and Inland Fisheries have documented over 20 species of fish from the river in recent years. Studies conducted by the North Carolina Department of Natural Resources, Division of Marine Fisheries, show this drainage to be a very important and productive anadromous fishery. Waters at the confluence of the Northwest and North Landing Rivers have been identified as critical nursery areas for blueback herring and other fishes. The riverine wetlands have also been identified as an important component of the Southern Watersheds Focal Area for implementation of the North American Waterfowl Management Plan.

4.7.2 Visual Assessment

The Northwest River corridor is for the most part untouched by modern development. Because some adjacent lands are in agricultural land use that type of activity is part of the visual context of this waterway. The marshes adjacent to the main river channel are extensive and provide pristine views to throughout the river corridor. Downstream from the Northwest River Park, the views are predominantly long with marsh or water views predominating in the foreground, middleground and background. Several properties are proposed along the shoreline for acquisition as conservation lands and natural areas. These properties will insure the protection of the marsh systems and the visual integrity of the landscape along the Northwest River.

While the Northwest River is not a Virginia Scenic River, it merits evaluation. In fact, its proximity to the North Landing River and its tributaries make it a potential candidate for addition to that river system's scenic status.

4.7.3 Existing and Potential Public Access

The Northwest River has two existing access points, the Northwest River Park (Site 28, Figure 4.7) and Bob's Fishing Hole (Site 29, Figure 4.7). The Northwest River Park offers a variety of access, including interpretive and educational opportunities. The park also offers 72 overnight campsites, including a group camping area, camping with electricity and water, and primitive camping. Two small boat or canoe put ins and several pedestrian trails are also located within the park. The City of Chesapeake has applied for a grant through American Greenways to update and redistribute the "Chesapeake Scenic Waterways Canoe Trail System" brochure. Access sites, which will be signed and noted in the brochure, include Indian Creek, Smith Creek the Northwest River, the upper Northwest River and Pocaty River. Additional sites which could be developed for canoe access are shown on Figure 4.7 and nclude Site 26 at Craigs Causeway Road and Site 28 at Baum and Indian Creek Road.

5.0 PROJECT DEVELOPMENT AND FUNDING

5.1 Community Involvement

The North Landing River watershed area already has a number of diverse community groups and organizations interested in the area's opportunities and concerned about maintaining the health of the watershed. Local groups support the scenic waterways designations and have also nominated the watershed as an exemplary natural areas system. Recreationists enjoy the waters and surrounding lands and the waterway serves as a major transportation route.

The City of Virginia Beach is expanding its tourist base because the oceanside beaches have seasonal and capacity limitations. The North Landing River and its watershed offer a broad range of leisure opportunities. Community involvement recommended for the planning and development of projects within the North Landing and Northwest Rivers watershed include:

Federal Agencies
State Agencies
Local Agencies
Local Recreation Interests
Local Business Interests
Local and Regional Tourism Interests
Local Civic Groups
Citizen Groups
Landowners

5.2 Who Can Develop Access

An issue which may affect who develops access is who will be responsible for operation and long-term maintenance of the facility. The ownership of a specific property will determine the primary party who can develop access through that given parcel. Mechanisms, such as use agreements or easements can also be used to develop access.

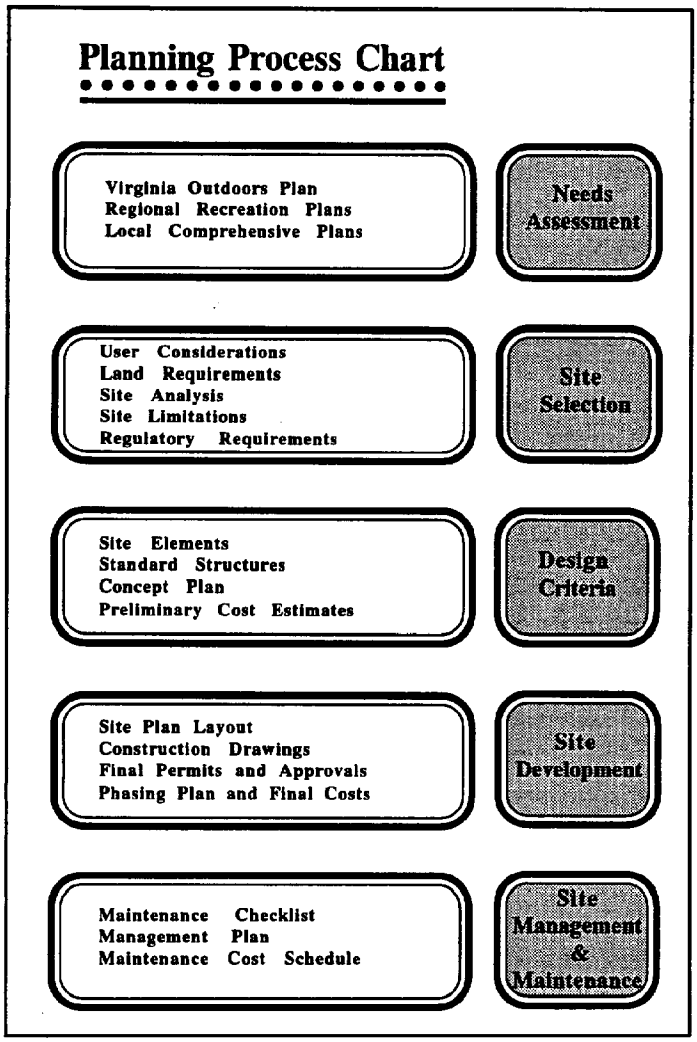
Private interests may develop access to the waterway if they control (own, lease, or have an easement or use agreement) the property and if the developed access meets all permitting requirements of the various regulatory agencies. Private interests may also enter into public-private partnerships to develop access.

Local government may develop access to the waterway. Local departments with an interest in such improvements may include the local parks and recreation and public works departments. Access might be possible through parcels controlled by other departments like public utilities or transportation.

State agencies may develop access on state owned lands. These agencies may also be involved as partners in access development on other properties or assist with the establishment of use agreements. State agencies encourage public - private partnerships with commercial businesses like Virginia Power.

Federal, state and local agencies can work together to achieve a project of local initiative.

There are funding sources who will help a locality or state or federal agency develop a specific project which meets the requirements for specific funds. Section 5.5 discusses potential sources of different funds for access projects.



5.3 Project Planning and Design

A recommended process for planning public access is represented in the following diagram, which was developed for the Chesapeake Bay Public Access Technical Assistance Report.

Source: Public Access Subcommittee. 1990. Chesapeake Bay Area Public Access Technical Assistance Report. Virginia Department of Conservation and Recreation, Maryland Department of Natural Resources, District of Columbia Department of Recreation and Parks, Pennsylvania Fish Commission, U. S. Fish and Wildlife Service, and U. S. Environmental Protection Agency.

5.3.1 Needs Assessment

The assessment of public access needs is based upon the number of existing sites, the level of use, demographics, carrying capacity of the resource, and anticipated future needs. The 1994 Virginia Outdoors Plan sets general standards and recommendations for developing access of regional or statewide significance. This report establishes the appropriate locations for access which will help meet the needs for access within this watershed while maintaining sustainability of the sensitive lands. If pressures to increase access within the watershed exceed the level of access proposed in this study, it is recommended that a study focusing on carrying capacity of the waterways be conducted with relation to boating traffic and other recreational activities.

5.3.2 Site Selection

In the North Landing and Northwest River watersheds, the site selection process for upland sites is narrowed by the limited amount of upland access to the waterways. The major consideration at these points will be to determine what type of access is most suitable at that location. the carrying capacity of a particular site determines whether it is appropriate for selection to provide access. On a broader scale, the carrying capacity of the waterway determines the types and levels of access appropriate to sustain its viability. This study does not determine a definitive carrying capacity for the watershed based on a buildout scenario for boating and recreational activities. Should pressures to develop access sites beyond those proposed in this plan, a detailed, carrying capacity analysis should be conducted to insure the sustainability of the waterways and the sensitive lands surrounding it.

Potential environmental impacts should be assessed and evaluated for each site selected for access development. Consideration of the compatibility of the new access with adjacent lands and uses should be an element of the site evaluation process. The sustainability of a site and its surrounding lands can be determined on a site by site basis. The environmental criteria for site selection and suggestions for site analysis based on the type of proposed access are specified in the Chesapeake Bay Area Public Access Technical Assistance Report.

5.2.3 Design Criteria

Each type of access will have its own design requirements and standards. The site selected will influence the appropriate design. Many excellent reference manuals are available for specific design standards and criteria. Recreation interests groups may provide important input in the design of access sites which insures design/use compatibility. Within the North Landing River watershed ,site carrying capacity and environmental considerations will be very important components of the design process.

5.3.4 Site Management

Management philosophy and site maintenance are considerations which should be considered in both the site selection and site design phases of public access development. Site management is as critical to the sustainability of a site as the criteria evaluated and used during development. Appropriate management strategies should be identified prior to the development of access to insure the success of the proposed development.

5.4 Environmental Assessments and Permitting

The required permits will vary depending upon the extent and impact of each type of access developed. Applications for required permits should be well in advance of the anticipated date of project construction. Projects may require local, state, and federal permits. Any type of impact to state waters or

wetlands will require a VMRC-Corps of Engineers joint permit. For detailed information this permitting process contact:

Virginia Marine Resource Commission
2600 Washington Avenue
Newport News, Virginia 23607-0756

All private, local, state and federal projects can take advantage of a state coordinated review process by request to the Department of Environmental Quality. While this type of review may not be required for each planned project, the advantage of this review includes identification of potential impacts and permits needed for development. Careful site planning and coordination is essential to avoid impacting sensitive areas. because the Southern Watersheds area is environmentally sensitive and concentrations of rare and endangered species exist throughout the area, environmental reviews with DGIF and DCR are recommended. For information on the state review process contact:

Department of Environmental Quality
629 East Main Street
Richmond, Virginia 23219

5.5 Funding

5.5.1 Public-Private Partnerships

Business opportunities and public-private partnerships may take a variety of forms. These may include on-site concessions, partnerships between managing agencies and other groups, special events, and commercial filming activities. Compatible business ventures can provide a wide range of visitor services and facility improvements.

The North Landing River and Northwest River Watersheds contain resources which chambers of commerce, visitors bureaus and travel services can capitalize on and feature in their advertising. The type of recreational activities possible in this watershed offer a number of opportunities for small businesses in the resort community. Typical examples include food services, recreational equipment sales and rental, lessons, and convenience items. In addition, transportation to and from facilities might be provided with guided tours and lodging. Outfitter tours and shuttles from take outs and put ins as well as interpretive or guided floats on the tributaries are possible partnership activities.

In addition to general tourism marketing of the opportunities within the watershed, special events can be planned to feature the area. Events could include fishing tournaments, photography contests, a canoe or kayak race, bicycle races, marathon or combination athletic event. A series of events could be organized which were tied to other local activities and festivals. For example, the Neptune festival, the Pungo Strawberry Festival, Memorial Day events, Labor Day and Fourth of July activities. One or more of these popular festivals could have an event added which featured activities from the North Landing and Northwest River areas.

5.5.2 Department of Game and Inland Fisheries (DGIF)

The Department of Game and Inland Fisheries manages several funds which are available for the development of public access. These funds area generally used for boat facilities which provide fishing and recreational access to the Commonwealth's waters. Among these funds is the Wallop-Breaux Trust Fund which is officially named the Aquatic Resources Trust Fund and was created in 1984 through amendments to the Sport Fish Restoration Act (popularly known as the Dingell-Johnson Fund). Wallop-Breaux is of crucial importance to state fisheries and boating safety programs. The Dingell-Johnson Fund allocates 12.5% of the Wallop-Breaux funds coming to the Commonwealth for public powerboat access. DGIF currently makes grants to localities which assist with development of boating and fishing access. For more information on funds or grants available for development of water related facilities contact:

Department of Game and Inland Fisheries
Division of Lands and Engineering
4010 West Broad Street
Richmond, Virginia
23230

5.5.3 Virginia Coastal Resources Management Program Grants

The Department of Environmental Quality administers the Virginia Coastal Resources Management Program. The program was first established in 1986 as a network of existing agencies, each having responsibilities in implementing Virginia's coastal resources laws. Approval of this program by the National Oceanic and Atmospheric Administration (NOAA) qualified Virginia for annual federal funding under the Coastal Zone Management Act of 1972, as amended. The funds are used and matched by state and local government agencies to further the purposes of the Act within the limits of the state's approved program. DEQ coordinates the program and administers the federal funds based on NOAA's continuing approval. Several areas of public access need which could be funded through these grants include coastal public access for recreation anf educational and interpretive opportunities relating to coastal issues and the protection of natural resources within the coastal zone. Applications for Virginia Coastal Resources Management Programs should be sent to:

Office of Chesapeake Bay and Coastal Programs
Department of Environmental Quality
629 E. Main Street
Richmond, Virginia 23219

5.5.4 Virginia Outdoors Fund Grant Program

The Department of Conservation and Recreation administers a grant-in-aid program for the acquisition and development of public outdoor recreation areas and facilities. Towns, cities, counties, regional park authorities, and state agencies may apply for 50% matching fund assistance from the Virginia Outdoors

Fund (VOF). These funds are provided through state general fund appropriations for the acquisition and/or development of outdoor recreation areas. This is a reimbursable program, meaning that the sponsoring agency should be capable of financing the project while requesting periodic reimbursement. Applications for the Virginia Outdoors Fund grant should be sent to:

Department of Conservation and Recreation
203 Governor Street, Suite 326
Richmond, Virginia 23219

5.5.5 Recreational Access Program

The purpose of the Recreational Access Program is to provide adequate access to or within publicly developed recreational areas or historic sites operated by the Commonwealth of Virginia, or by a local government or authority. The program is administered by the Department of Transportation (VDOT) under the authority of Section 33.1-223 of the Code of Virginia. The Director of the Department of Conservation and Recreation participates and concurs with designation and recommendations for the use of these funds. Application for program funding must be made by resolution of the governing body of the jurisdiction in which the access road or bikeway is to be located. Project funding is allocated by resolution of the Commonwealth Transportation Board, and construction may be accomplished by the Department of Transportation or, where appropriate, by the locality under and agreement with VDOT.

Roads constructed under this program become part of the primary or secondary state highway system, or the local road system. Bikeways constructed outside the right-of-way limits of access roads become the responsibility of the authority or agency maintaining the site which they serve.

Construction, reconstruction, maintenance and improvement of roads and bikeways are eligible for Recreational Access funding. A road or bikeway constructed with Recreational Access funds must serve a publicly developed recreational area or historic site operated by a state agency, a locality, or local authority (not a federal facility). No access road or bikeway may be constructed, reconstructed, maintained or improved on privately owned property.

Development of the site to be served by the road or bikeway must be complete or in progress, or assurance must be provided that such development will occur within a specified period. In addition, the site must be designated as a public recreational or historic area by the Director of the Department of Conservation and Recreation must recommend construction of the access facility.

Costs incurred in the development, design or construction of a Recreational Access facility prior to the allocation of funds by the Commonwealth Transportation Board are not eligible for reimbursement through this program. Right-of-way acquisition and adjustment of utilities costs are not eligible for reimbursement at any time and must be funded by the applicant or from other available sources.

For additional information on this program contact:

State Secondary Roads Engineer
Virginia Department of Transportation
1401 E. Broad Street
Richmond, Virginia 23219
(804) 786-2746.

5.5.6 Virginia Recreational Trails Fund Program

The Virginia Recreational Trails Fund Program is a grant program established for the purposes of providing and maintaining recreational trail-related facilities. It is funded by the National Recreational Trails Act, which establishes a program for allocating funds to the States for recreational trails and trail-related projects. The program will be administered by the U. S. Department of Transportation, Federal Highway Administration (FHWA) in consultation with the Department of Interior. The state agency which is responsible for administering the program in DCR.

Grant funding may be provided to private individuals, organizations, city governments, county governments, or other government entities, but must consider guidance from the Virginia State Trails Council (VSTC). VSTC advises DCR on trails-related issues. Council members, appointed by DCR, represent trail user groups including: ATV, bicycle (off road and paved surface), four wheel drive, hike (close-to-home and long distance), equestrian, motorcycle, cross-country ski and water-related trail use.

A minimum of 30% of funding received annually by a State must be used for motorized recreational trail uses, 30% must be used for non-motorized recreational trail uses, while the subsequent 40% is discretionary; however, preference must be given to project proposals with the greatest number of compatible recreational purposes and/or provide for innovative recreational trails corridor sharing. This reimbursement program, meaning that the sponsoring agency should be capable of financing the project while requesting periodic reimbursements. Projects may be funded 100%.

For additional information or applications contact:

Department of Conservation and Recreation
203 Governor Street, Suite 326
Richmond, Virginia 23219
(804)-786-2556

5.5.7 Virginia Transportation Enhancement Program

The federal Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 opens a new era in transportation legislation. With this Act, Congress has provided the states increased flexibility to manage their transportation programs. ISTEA gives all levels of government and the private sector the opportunity to work together to plan and develop intermodal transportation systems tailored to their specific needs. An intermodal transportation system is one in which various forms of transportation are integrated and interconnected.

ISTEA also reflects a growing environmental awareness. One part of the Act directs funds toward specific types of transportation enhancements. This program provides a means of financing activities that go beyond the normal elements of a transportation improvement project. Transportation enhancement activities are funded under the Surface Transportation Program (STP) of ISTEA. Ten percent of each state's STP is set aside for enhancement. In Virginia, this is approximately $7 million a year through 1996.

Transportation activities can be a stand alone project or can be implemented as part of an on-going transportation project. In either case, it must relate to the intermodal transportation system in function, proximity or impact. Transportation enhancement activities may also improve the value or worth of a project or make it more aesthetically pleasing. Enhancement projects should provide a "quality of life" benefit and should also provide an opportunity to implement something that is not common place in transportation projects.

For information on the Virginia Enhancement Program application process contact:

Programming and Scheduling Division
Virginia Department of Transportation
1401 East Broad Street
Richmond, Virginia 23219

5.5.8 Virginia Environmental Endowment (VEE)

The Virginia Environmental Endowment is a private grantmaking foundation whose purpose is to improve the quality of the environment in Virginia. Since its inception in 1977, the endowment has followed a broad charter to solve environmental problems. By seeking out programs that actively involve people, the Endowment encourages diverse groups to work together to develop and promote responsible solutions to environmental problems. By working together in new partnerships, the VEE fund common goals and better ways to restore, protect, manage and enhance the quality of the environment.

The Virginia Program of the VEE provides grant support for projects that improve the quality of the environment for the direct benefit of the citizens of the Commonwealth of Virginia. Grants in this program focus on program priorities while maintaining the flexibility to support other outstanding ideas. Education, public policy, local action and research programs which present new and practical ways to prevent environmental problems are considered as grant possibilities. Also, local environmental projects that serve as models for other communities and regions are encouraged.

For more information regarding the current grantmaking priorities and for an application contact:

Virginia Environmental Endowment
P. O. Box 790
Richmond, Virginia 23206-0790
(804)644-5000

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Appendix A

Commonwealth of Virginia

TRANSPORTATION Enhancement PROGRAM

93077

APPLICATION FORM FOR CANDIDATE PROJECT

1. APPLICANT *(Group, Agency, etc.) Name and Address:*

CITY OF VIRGINIA BEACH

PLANNING DEPARTMENT,

2405 COURTHOUSE DRIVE, VIRGINIA BEACH, VA

2. RESPONSIBLE PERSON/TITLE — Telephone Number ( ) 427-4621

ROBERT J, SCHMIDT, DIRECTOR OF PLANNING

3. ENHANCEMENT ACTIVITY NUMBERS *(See Instructions. Circle all that apply):*

(1) 2 3 4 (5) 6 7 8 9 10

4. PROJECT LOCATION AND DESCRIPTION

Project Title: PUNGO PARK CONNECTOR TRAIL

Project Size *(Size of Project/Acreage):* APPROXIMATELY

Project Location *(Include Streets, County and Municipalities:)* — Project Description *(attach site/location map):*

SEE ATTACHMENT

(add additional pages as needed)

5. PRIORITY NUMBER of this project is 1 — The total number of projects submitted 16

Have the local government bodies officially supported/endorsed this project? Yes ☒ No ☐

If "Yes" attach documentation of support. Also document support from any other civic or public interest groups or organizations.

If "No" attach comments from local government.

6. PROJECT CONSTRUCTION/IMPLEMENTATION SCHEDULE *(month and year)*

Begin Design	(8 MONTHS) 1/94 estimate
Begin Construction/Implementation	9/94 estimate
Estimate completion date of project	(12 MONTHS) 9/95 estimate

Continued

7. OWNERSHIP Who will own/maintain the completed project?

CITY OF VIRGINIA BEACH

8. ESTIMATED COST OF THE PROJECT

Total project cost $ 644,600

Total Non-federal participation $ 128,920
(minimum 20% of cost)

Non-federal Funds List of Source(s)	Status (confirmed/anticipated)	Amount
CITY OF VIRGINIA BEACH	ANTICIPATED	128,920

Project cost breakdown (sub-totals):

Planning and Design $ 58,600

Land Acquisition $ 0

Utility Relocation $ 0

Construction/Implementation $ 586,000

Describe in detail any tangible in-kind match you propose for the match requirement.

The City of Virginia Beach owns a portion of the right of way required by this project. The City would pursue an easement for those portions of the project that would be located on property owned by Virginia Power.

9. BENEFITS (see attached)

How does the candidate project support the eligible category and satisfy the Intermodal Surface Transportation Efficiency Act definition for Transportation Enhancement Activities? Please address benefits and public use anticipated. Use additional 8½ x 11 sheets if needed.

10. SIGNATURE *(Responsible Person)*

Dale Castellow for Robert F. Scott Date 27 July 93

MAILING ADDRESS AND TECHNICAL ASSISTANCE

Please mail five copies of your completed application package to the following address:

Mr. D. L. Eure
Programming and Scheduling Division
Virginia Department of Transportation
1401 East Broad Street
Richmond, Virginia 23219

Please mark all attachments with project name and location.

9. BENEFITS - (Attachment to application)

TITLE: Pungo - Park Connector Trail

LOCATION: City of Virginia Beach
(south of Buckner Boulevard, east of Princess Anne Road, west of Holland Road, north of Indian River Road)

This project offers the opportunity to take advantage of existing unused right-of-way and apply the "rails to trails" concept of adapting one former transportation mode (railroad lines) to another (bicycle/pedestrian trail). This particular trail would also be an extension of an existing trail along South Independence Boulevard which has been recognized as one of the first 500 rail-to-trail conversions in the nation. Connection of the proposed trail to the South Independence trail offers the opportunity to access many other city bikeways (e.g. Lynnhaven Parkway and Dam Neck Road).

This new trail would provide an alternative means of transportation through this area and link the suburban portion of the city to its more rural half. Bicycle/pedestrian access to the Virginia Beach Municipal Center, Tidewater Community College, the Farmer's Market, Kellam High School, and Princess Anne Park would be available to a wider segment of the community. The new trail would provide the opportunity to observe a portion of the West Neck Creek's natural environment. West Neck Creek is part of the Virginia Beach Scenic Waterway System, the first locally-developed comprehensive water trail system in the Commonwealth. Interpretive signs would provide environmental information about the habitat and historical information concerning the former railroad.

This proposed project is included in the City of Virginia Beach's Master Bikeway Plan and in the Regional Bikeway Facilities Plan prepared by the Hampton Roads Planning District Commission.

4. PROJECT LOCATION AND DESCRIPTION - (Attachment to application)

TITLE: Pungo - Park Connector Trail

LOCATION: City of Virginia Beach
(south of Buckner Boulevard, east of Princess Anne Road, west of Holland Road, north of Indian River Road)

PROPOSED ACTIVITIES: Design and construct a pedestrian/bicycle trail facility along a former railroad right-of-way.

EXISTING CONDITIONS: The project site is an abandoned Norfolk/Southern Railroad right-of-way (approximately 66 feet wide), portions of which are now owned by Virginia Power and the City of Virginia Beach. Virginia Power has high voltage power lines within the right-of-way. The City of Virginia Beach has a pump station located within the right-of-way.

PROPOSED FACILITIES: An asphalt surfaced pedestrian/bicycle trail (10 feet wide/six miles in length) is the main element of this project. Two rest areas consisting of benches and trash receptacles would be incorporated into the trail design. A bridge over West Neck Creek would be required and a raised wooden boardwalk may be required over wetland areas. At scenic locations appropriate landscaping and restorative planting of native and adaptive species would be accomplished as well as interpretive signage related to the ecology and history of the area.


Project: PUNGO-PARK CONNECTOR TRAIL
PRINCESS ANNE QUADRANGLE
PLEASANT RIDGE QUADRANGLE

Appendix B

ENVIRONMENTAL IMPACT REPORT

for

NATURAL AREAS SECURITY--
NORTH LANDING RIVER NATURAL AREA PRESERVE

Project Code #15298
Biennium: 1994-96

Department of Conservation and Recreation
Division of Natural Heritage
1500 E. Main Street
Richmond, VA 23219
Contact: Tom Stuart
(804)786-9014
Agency Code: #199

December, 1993

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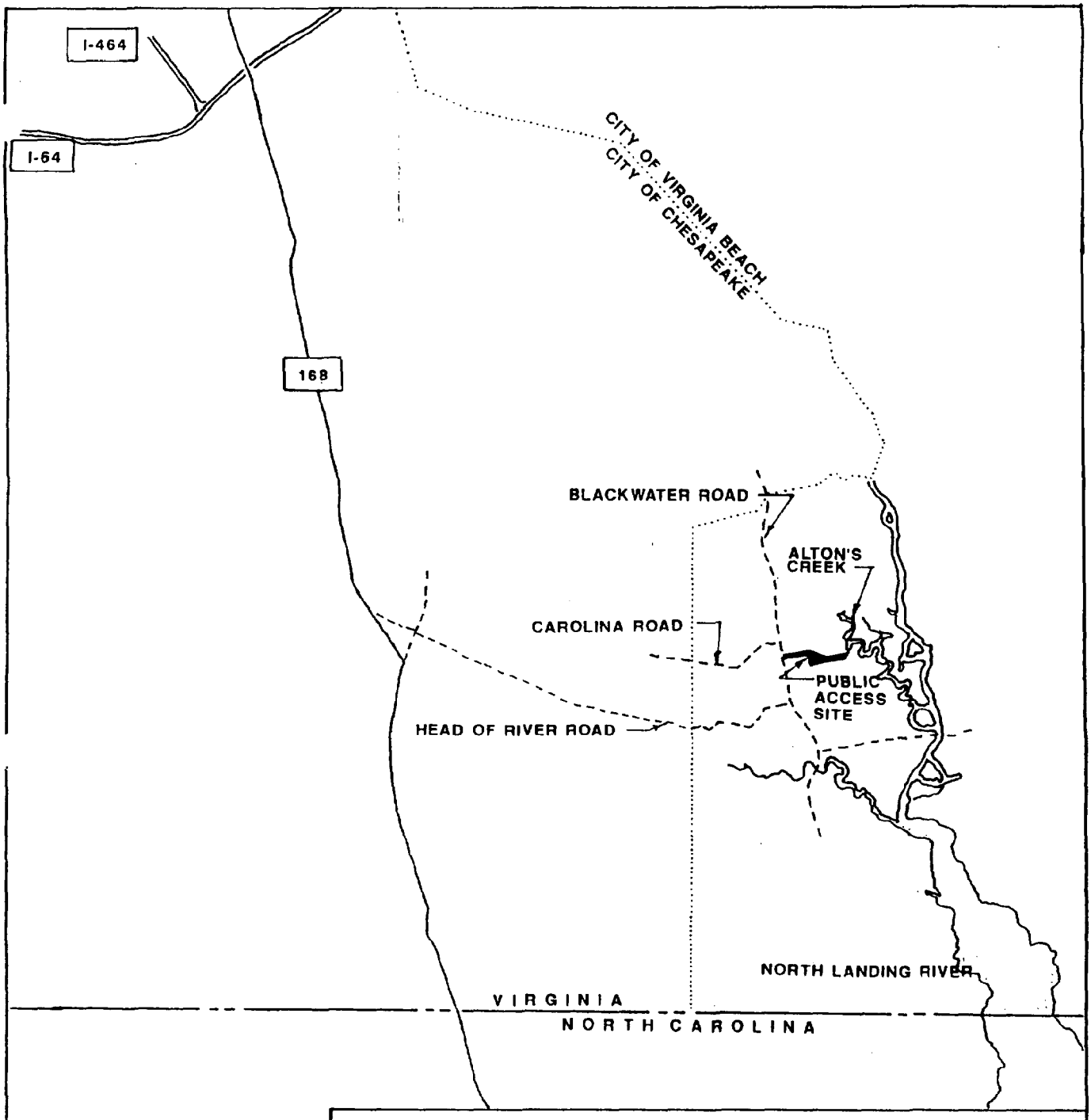
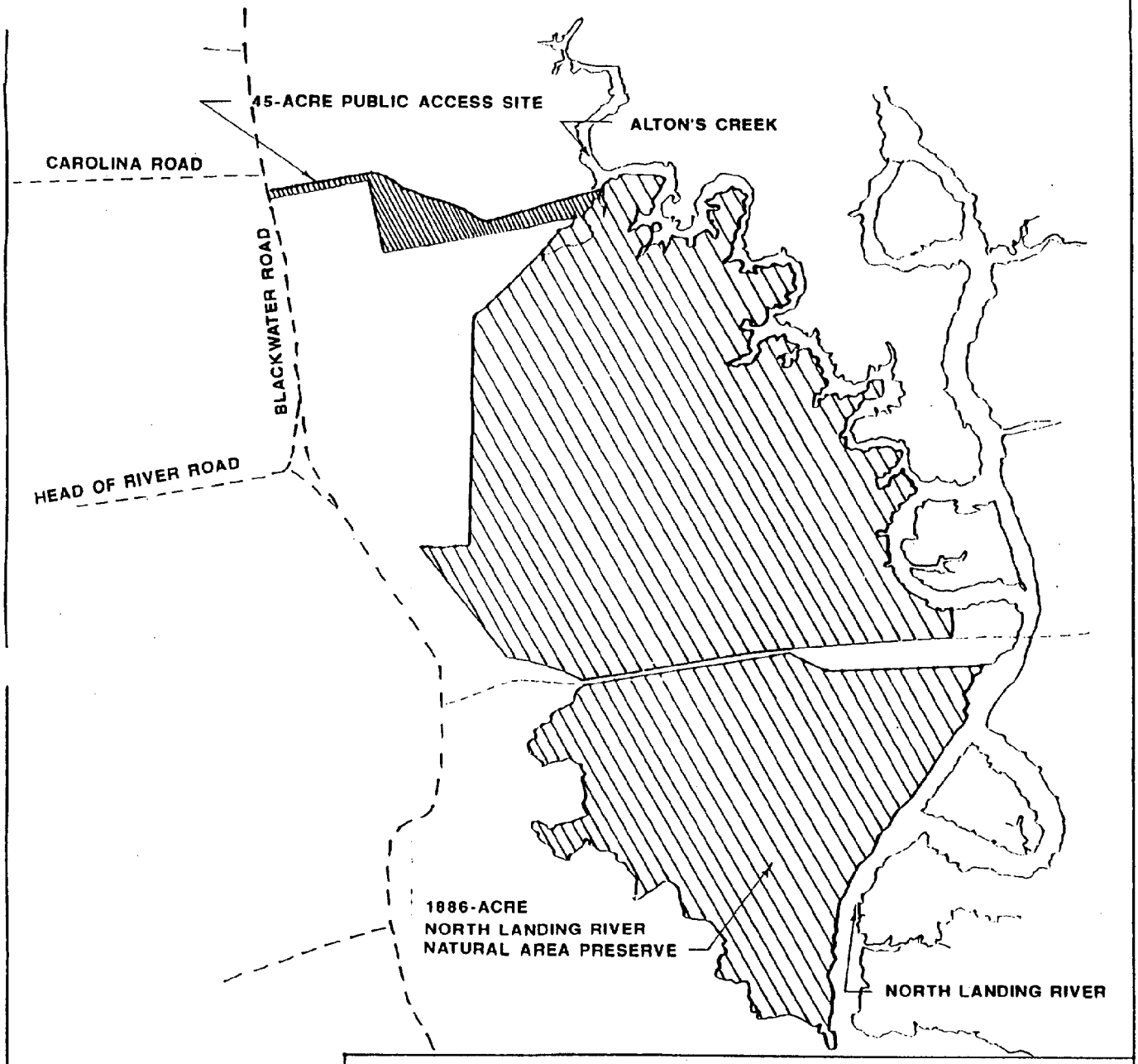


LOCATION MAP

NORTH LANDING RIVER NATURAL AREA PRESERVE PUBLIC ACCESS PROJECT

SCALE: NTS

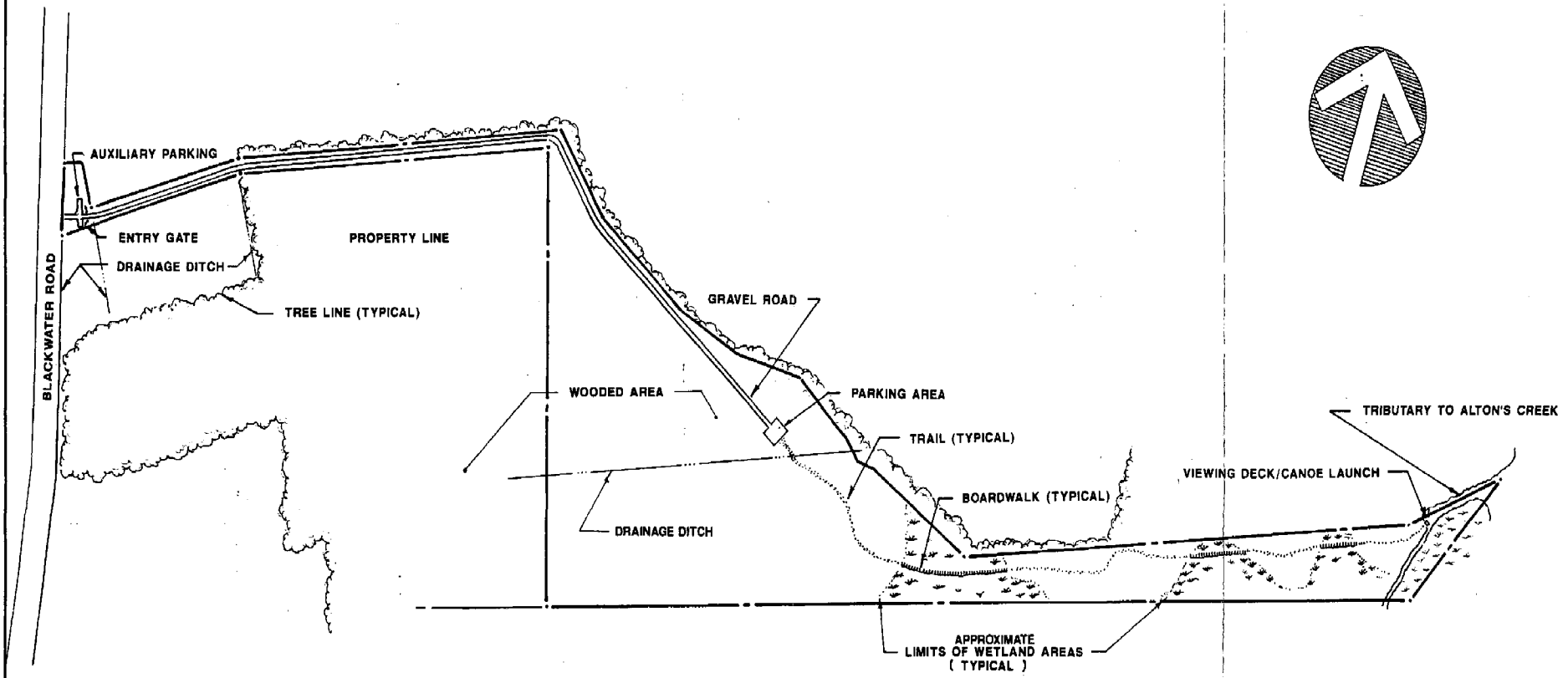
SOURCES: VIRGINIA ATLAS & GAZETTEER



CONTEXT

NORTH LANDING RIVER NATURAL AREA PRESERVE PUBLIC ACCESS PROJECT

SCALE: NTS



PRELIMINARY SITE PLAN

NORTH LANDING RIVER
NATURAL AREA PRESERVE
PUBLIC ACCESS PROJECT

SCALE: 1' = 400'

PROJECT DESCRIPTION

Background

As part of its mission, the Department of Conservation and Recreation (DCR) has the responsibility to locate and acquire tracts of land which contain exemplary natural communities or rare and endangered species, and to dedicate these tracts of land as Natural Area Preserves. Once such tracts of land have been set aside, it is the further responsibility of DCR to manage these preserves. The first priority of such management is the continued health and recovery of the plant and animal communities which reside there. Within the constraints imposed by this management priority, DCR must also make these areas accessible to the public for continued study and appreciation without detriment to the protected resources.

So far, eight Natural Area Preserves have been dedicated. One of these is the North Landing River Natural Area Preserve (NLR Preserve), an environment of swamps, marshes, and upland forest within the city limits of Virginia Beach (see Context map). The preserve, which presently has an area of 1886 acres, is poised to nearly double in size as DCR representatives work out the details of two pending acquisitions totaling 1440 acres.

The NLR Preserve is known to contain 10 different species of plants and animals ranked by DCR as rare within Virginia, including the canebrake rattlesnake (*Crotalus horridus atricaudatus*), which is on the state endangered species list. The area may be the home of still other rare or endangered species not yet encountered on the preserve. One of these is the Dismal Swamp southeastern shrew, an elusive and tiny mammal weighing about as much as a dime. The preserve also contains one of Virginia's finest remaining examples of a pocosin, a fire-dependent plant community characterized by a dense tangle of vines and shrubs and occurring in nutrient-poor wetland environments (see Attachment A for an inventory of preserve species).

Ongoing management of this and other preserves is critical to maintaining the ecological habitats and plant and animal species for which the preserves were established. An important aspect of preserve management is appropriate public access -- access which directs visitors through the Natural Area Preserve for natural history interpretation and environmental education and which, at the same time, protects fragile habitats from inadvertent damage.

Project Need

No public access to the NLR Preserve is currently available. Though the preserve has public road frontage along Pungo Ferry Road, the continuous wetlands along this frontage prevent any access development. To provide a site suitable for public access to the NLR Preserve, DCR has purchased 45 acres of relatively dry land which adjoins the preserve at the northwesternmost boundary of the preserve.

Location

The site of the proposed project is located within the southern watersheds of the City of Virginia Beach, on the east side of Blackwater Road between Old Carolina Road and Head of River Road (see Location Map). The planned facility is approximately sixteen miles from the interchange of I-64 and Battlefield Parkway, twenty-two miles from the city limits of Norfolk, and approximately two miles from the city limits of Chesapeake.

The property purchased is a 45-acre portion of a 110-acre parcel formerly owned by Annie B. Kellam and Floyd E. Kellam, Jr. The newly-created tract extends from Blackwater Road along the edge of an open field and into a wooded area to the east (see Context map).

Project Scope

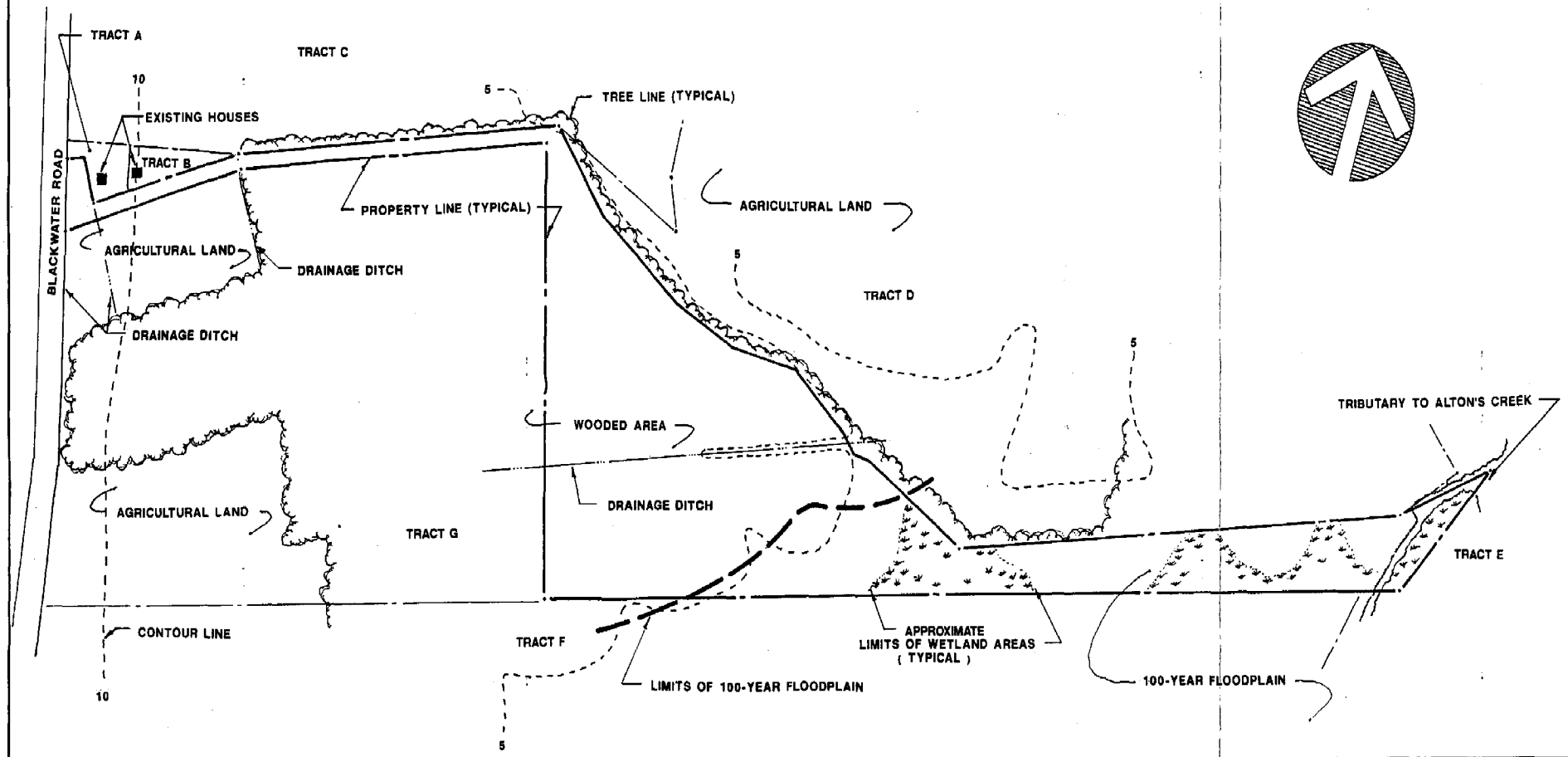
The project to be examined in this Environmental Impact Report is a proposed public access route across this 45-acre property to Alton's Creek, a tributary to the North Landing River (see Preliminary Plan). The proposed project will consist, first, of a short, gravelled, entry drive across two existing drainage ditches. At the point of the second existing drainage ditch, a distance of approximately 100 feet from Blackwater Road, a gate will be erected to control use of the site. One or two parking spaces and a trash receptacle will be provided near the gate.

Beyond the gate, a gravel road (18' x 4200') is planned which will be constructed along the edge of a field and into a woods, terminating at a parking area for six to eight cars and a school bus (approximately 5600 square feet). Road width may narrow as a result of development restrictions imposed by the U.S. Fish and Wildlife Service. A portable toilet facility, screened from view by plantings, will be provided near the parking area.

From the parking area, a footpath consisting of alternating trail and boardwalk is planned, leading to a viewing deck/canoe launch. The sections of the proposed boardwalk will be constructed of salt-treated lumber, covering a total of roughly 4500 square feet (5' x 900'). The trails will be cleared paths five feet wide, graded and surfaced only as required to make them accessible. To promote environmental education, interpretive signs will be provided along the trail and boardwalk.

The terminus of the access facility will be a viewing deck/canoe launch (approximately 600 square feet) constructed of the same materials as the boardwalk. DCR is investigating the possibility of constructing portions of the deck/launch with recycled plastic "lumber". It is hoped that the launch will encourage the public to explore the preserve by canoe or kayak over the waters of Alton's Creek.

All public access development will occur within the newly-purchased 45-acre site. Development will affect approximately 4 acres of that property. The proposed project will entail permitting by a number of regulatory agencies. Among them:



- NO SLOPES GREATER THAN 15%
- SITE LIES OUTSIDE CHESAPEAKE BAY WATERSHED
- EXISTING CONTOURS TO REMAIN UNCHANGED

ADJACENT PROPERTY OWNERS

TRACT A	HARRY WHITEHURST
TRACT B	LEROY FOREMAN
TRACT C	EARL M. & LAURA MAE TEBAULT
TRACT D	EARL M. & LAURA MAE TEBAULT
TRACT E	COMMONWEALTH OF VIRGINIA
TRACT F	GERALD N. & ANITA M. SOREY
TRACT G	ANNIE B. & FLOYD E. KELLAM, JR.

AFFECTED ENVIRONMENT

NORTH LANDING RIVER NATURAL AREA PRESERVE PUBLIC ACCESS PROJECT

SCALE: 1" = 400'

SOURCES: VDOT AERIAL PHOTO (2/9/85) FEMA FLOOD INSURANCE MAP
USGS PLEASANT RIDGE QUADRANGLE 1979

- The U.S. Army Corps of Engineers, for development in wetland areas.
- The Virginia Marine Resources Commission, for construction of the viewing deck/canoe launch.
- The Virginia Department of Environmental Quality Water Division, for installation of culverts.
- The U.S. Fish and Wildlife Service, for construction within the recovery area of a federally-threatened species.
- The Planning office of the City of Virginia Beach.

The proposed facility will provide a much-needed public access to the NLR Preserve. It will also enhance opportunities for environmental education and use of Alton's Creek by canoeists. A one-half day canoe trip will be available for canoeists from this site to a site owned by the City of Virginia Beach at the old Pungo Ferry Bridge. The "Public Access Plan and Visual Resource Assessment for the North Landing River Watershed" mentions this site and the proposed facilities as critical to providing public access and environmental education opportunities to the resources of the region.

AFFECTED ENVIRONMENT

Regional Significance

The site of the proposed NLR Preserve public access facility lies within the watershed of the North Landing River, which drains south to Albemarle Sound, away from the Chesapeake Bay. This watershed contains thousands of acres of undeveloped, non-tidal wetlands, and lies along the Atlantic Flyway, a north-south route along the coastline of the Atlantic Ocean for many species of migratory birds. Biological inventories by DCR in this watershed have so far revealed the presence of 40 species considered rare or endangered in Virginia.

In recent years the area has been a focus of attention for conservation groups, in particular The Nature Conservancy and DCR. Activity by The Nature Conservancy has resulted in land purchases totaling roughly 5460 acres at sites above and below the NLR Preserve. Such large-scale preservation activity increases the efficacy of similar DCR preservation efforts in this watershed. It also contributes to the continuing desirability of thoughtful public access to this area. Such access would not only offer the public a wilderness experience in a diverse and unspoiled natural area, but would also serve as a means of educating and exciting citizens about wetland preservation.

The site of the proposed access facility is close to a large metropolitan area and would enhance opportunities in the region for eco-tourism. The proposed access reinforces efforts by the City of Virginia Beach to promote use of the over 120 miles of canoeable waterway lying within city boundaries. The city has earmarked over $600,000 for construction of public canoe launches, improvement and signage of existing launch points, and promotional literature.

Topography

The 45-acre Kellam tract is typical of property in the Southern Watersheds (see Affected Environment map). The site is low-lying and flat, most of which sits less than ten feet above sea level. Elevation is greatest at Blackwater Road, and declines from west to east. There are no clearly defined watersheds or natural drainage swales on the proposed access site. Though surface water moves roughly west to east across the site, most water on this site is absorbed by the soil, which is quite porous in the substratum. Man-made agricultural ditches (shown on the Affected Environment map) drain standing water from heavy rains slowly. Because of the flat topography, the terrain shows no indication of soil erosion.

Wetlands

Much of the eastern end of the site is non-tidal wetland. The Army Corps of Engineers has confirmed the presence of wetlands on the site, and has recommended that they be delineated by a qualified consultant. Areas on the site below an elevation of 5' lie within the 100-year floodplain, according to FEMA flood insurance maps of the Virginia Beach area.

Groundwater/Drinking Water

The site has no wells and no municipal water supply. DCR does not plan to provide drinking water on the site.

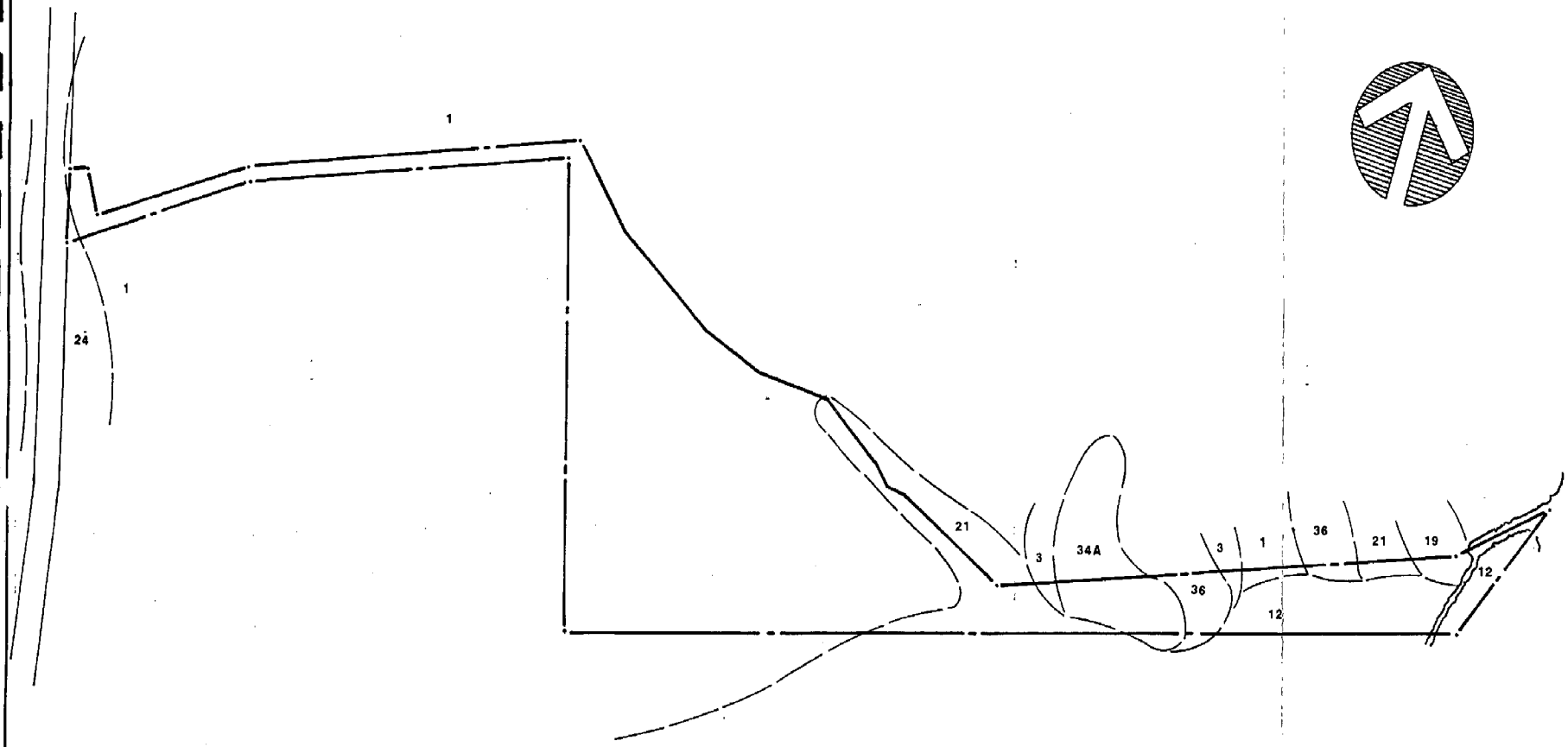
The Virginia Beach area does possess confined aquifers at average depths of 40'. No aquifer is known to exist on the project site, but a potential aquifer here would be unaffected by the proposed project.

Water in the North Landing River watershed reaches the river and its tributaries primarily by underground flow, and in many areas of the site groundwater is at or near the surface of the soil. The U.S. Geological Service has been contracted by DCR to conduct a study of the hydrology of the North Landing River watershed.

Water Quality

Water quality in the North Landing River and its tributaries has been affected by farming operations within the watershed of this river. The DCR Virginia NonPoint Source Pollution Watershed Assessment Report (1993) has noted elevated phosphorus levels in this watershed which may be the result of fertilizers leaching into the groundwater.

Water quality information specific to Alton's Creek and the site of the proposed facility is not available. However, the health and diversity of species in the locality of the proposed access site argues for relatively high water quality here.



SOIL LEGEND

1	ACREDALE
3	AUGUSTA
12	DOROVAN
19	MUNDEN
21	NAWNEY
24	NIMMO
34A	STATE
36	TETOTUM

SOIL SURVEY

NORTH LANDING RIVER NATURAL AREA PRESERVE PUBLIC ACCESS PROJECT

SCALE: 1" = 400'

SOURCES: SCS SOIL SURVEY OF VIRGINIA BEACH, 1985

Soils

The Soil Conservation Service soil survey of the Virginia Beach area indicates that the soil type comprising the greatest area of the project site is the Acredale soil (#1 on Soil Survey map). This soil is only slowly permeable in the upper layers, and is subject to a seasonal high water table at or near the surface of the ground. The existence of drainage ditches on the site helps to alleviate this condition.

With one exception, the remaining soil types are found clustered at the east end of the project site, where the least amount of intervention will occur. These soils are more permeable than the Acredale soils, but are subject to similiar seasonal high water tables. Construction in this area of the site is further constrained by the presence of wetlands. The sole exception is the Nimmo loam (#24 on the Soil Survey map), which is found at the west end of the site and which underlies Blackwater Road. It is more permeable than the Acredale soil, but like that soil is subject to a seasonal high water table of 0' to 1.0'.

Hazardous Materials

The proposed access site is undeveloped, and has been used primarily for agriculture and logging. There are no hazardous materials on the site (see Attachment B).

Existing Land Uses

The 45-acre portion of the Kellam tract has no improvements, other than drainage ditches. New property lines at the western end of the site cut a narrow swath along the edge of agricultural land, which is being used to raise soybeans at present. To the east, the property is wooded (woodland edges are noted on the Affected Environment map). Much of the eastern end of the site is forested wetland.

Wildlife and Vegetation

Wetland areas on the site are wooded. Predominant trees in the woodland canopy are sweetgum (*Liquidambar styraciflua*), tulip poplar (*Liriodendron tulipifera*), red maple (*Acer rubrum*), white oak (*Quercus alba*), and beech (*Fagus grandifolia*).

Because the wooded portion of the site is contiguous with hundreds of acres of surrounding woodland and undeveloped property, the site is home to a diverse plant and animal population, particularly birds. The access site lies within the recovery area for the Southeastern Dismal Swamp Shrew, a federally threatened species. Because of this, the U.S. Fish and Wildlife Service will be imposing constraints on site development.

Archaeological Sites

The Department of Historic Resources, in a letter to the Division of Natural Heritage (See Attachment C), has indicated that the proposed access facility will have "no effect on historic properties" (VDHR File no. 93-0071-F). Because the development planned for this area is unlikely to disturb a possible archaeological site, the DHR has concluded that a Phase I archaeological survey will not be required.

Adjacent Properties

The tracts adjacent to this property, with two exceptions, are also agricultural or wooded (see Affected Environment map). The exceptions are two adjoining residential lots of less than two acres each near Blackwater Road. The proposed access road will run parallel to the southern property lines of these lots.

Scenic Properties

The area surrounding the proposed access facility contains no designated scenic properties. The North Landing River, however, is a designated scenic river. Alton's Creek, which is a tributary to the North Landing River, is almost untouched by development and retains its wilderness character.

The North Landing River watershed also contains thirteen natural areas of significance for their exemplary natural habitats or rare or endangered species. One of these natural areas encompasses the NLR Preserve.

ALTERNATIVES

Alternative 1: Another Site

If a public access facility to the NLR Preserve is to be constructed , there are few site alternatives to the 45-acre tract under consideration. In choosing an access site, DCR determined that the site ought to be:

1) adjacent to the preserve,
2) accessible from a paved road,
3) scenic,
4) free from structures and environmental hazards,
5) suitable for construction of a road and parking area.

The search for an access site uncovered only two suitable properties for sale. Of these, one did not meet criteria #3 and #4. The other is the property under discussion. Given the flat and wet terrain of the properties surrounding the NLR Preserve, no other site will provide public access with the relative ease and low environmental impact of the Kellam tract.

Alternative 2: A Truncated Entry Road

The configuration of the Kellam tract, the natural features of the site, and the purpose of the proposed facility all serve to constrict the range of design alternatives for public access.

One alternative is to limit vehicular access by providing only a short entry drive and parking area at Blackwater Road. The remainder of the site would be accessible only to pedestrians. This alternative would reduce the need for clearing and grading required by the proposed gravel road and interior parking area, and would likely also reduce the amount of runoff generated by a relatively impervious gravel surface.

Limiting vehicular access in this manner will certainly reduce environmental impact; it will almost as certainly reduce the usefulness of this facility for use by the general public. Many individuals, whether out of infirmity or lack of fitness, will find the trek from Blackwater Road to Alton's Creek -- a distance of slightly over one mile -- so challenging that they will not attempt it. Covering that distance in a wheelchair would be particularly difficult. Canoeists who might wish to explore the NLR Preserve by water will be obliged to carry their canoes over one mile to the launch site. This design alternative may be objected to on aesthetic grounds as well. Construction of a parking area near Blackwater Road may be viewed as a detraction from the rural character of the surrounding landscape.

Alternative 3: No Construction of Access Facility

A decision not to provide a public access facility on this site would eliminate the possibility of any negative environmental impacts from construction. It will, at the same time, deprive the 1886-acre NLR Preserve of all public access and limit opportunities to safely explore the unique natural heritage of the North Landing River. If no public access is provided, unmonitored makeshift access, whether pedestrian or vehicular, may open the preserve to environmental degradation as individuals make access for themselves by foot, bike, or truck to Alton's Creek and the North Landing River.

IMPACTS

The proposed public access facility will have some negative environmental impact during its construction, and will make some permanent environmental changes. However, with thoughtful design, this access facility will minimize impacts caused by vehicles or pedestrians. It will also provide individuals the opportunity to observe and appreciate the unique environment of the NLR Preserve. In so doing, the facility will offset some of the environmental impacts of its construction by educating the public and by building public support for conservation.

Specific Impacts

The construction of the proposed access facility will create some short-term and permanent environmental changes. The effects of construction on environmental resources are as follows:

Rare or Endangered Plant and Animal Species

Surveys by the Division of Natural Heritage found no rare, endangered, or threatened plant species on the 45-acre access site. Construction here will pose no danger to this resource. There are, of course, a number of rare or endangered species or endangered plant communities on the adjoining NLR Preserve, and still others in the larger watershed of the North Landing River. Public access to the area is being routed to prevent the inadvertant destruction of species and habitat by uninformed visitors to the site.

Certain wetland and upland communities on the access site are potential habitat for the state and federally threatened Dismal Swamp shrew (*Sorex longirostris fisheri*) and the canebrake rattlesnake. There have been no surveys for these rare species conducted on this property. A representative of the U.S. Fish and Wildlife Service has visited the site and concluded that the habitats found here are suitable for the Dismal Swamp Shrew.

Significant Habitat

As indicated earlier, the access site lies on the Atlantic Flyway migratory route for birds, and as a result the area is a seasonal stopover for birds. Proposed construction of the entry road will clear approximately 3.02 acres of woodland, and so remove some of the forest canopy that birds might use. Clearing and grading will also remove cover for other wildlife. Because the area to be cleared is linear -- a 30' swath to accommodate an 18' road, shoulders, and drainage swale -- the loss of habitat will likely have a negligible effect on wildlife.

Development restrictions imposed by the U.S. Fish and Wildlife Service may result in a somewhat narrower swath cleared for construction of the road.

Unique Terrestrial Vegetation

The wooded and agricultural areas of this site are typical of the Tidewater area. A DNH survey of the access site, which took into account unique habitats as well as rare or endangered species, did not reveal any natural heritage plant resources. One can reasonably conclude that the proposed access facility will harm no unique terrestrial vegetation.

Aquatic Life

Aquatic life in Alton's Creek or adjacent wetland areas will not be affected by the proposed facility. Planned construction will result in minimal filling of wetland areas (less than 10,000 sf) and will not block water flow across the site. Increased runoff from the relatively impervious surfaces of the gravel road and parking area can be retained with shallow drainage swales and permitted to percolate into the soil.

Historic Structures

There are no standing structures on the site. In a letter to the Division of Natural Heritage dated 1/27/1993, the Department of Historic Resources indicated that the proposed facility will have "no effect" on historic structures, and that a Phase I archaeological survey will not be required of DCR for this project.

Agricultural Land

As mentioned earlier, the 45-acre site includes a 50' strip of agricultural land. This strip of land -- approximately 1.25 acres -- is the northern edge of a field presently planted to soybeans. This loss of farmland will be permanent if the facility is constructed.

Forest Land

Approximately 3.02 acres of wooded land will need to be cleared to make way for the proposed access facility. If the facility is constructed as planned, this loss will also be permanent.

Wetlands

A significant proportion of the eastern half of this site is non-tidal wetland, the limits of which will be delineated by a qualified consulting firm. The proposed parking area and entry road will be sited so as to encroach on these areas as little as possible. Forested areas with standing water will be spanned by a boardwalk. This structure, while not impeding water flow, will intensify the existing shady conditions under the .1 acres of wetlands it traverses. The increased shade, however, is not expected to significantly alter surrounding herbaceous vegetation which is already adapted to low light levels.

Streams

The proposed access site is intersected by a branch of Alton's Creek approximately 50' wide, and flowing slowly to the northeast. The banks of this branch will be the site of a viewing deck/canoe launch if the facility is constructed. As mentioned under "Aquatic Life", construction of the canoe launch will entail some soil disturbance, particularly when the support posts are driven, with a consequent short-term

increase in stream sediment. Because movement of water in this branch is barely perceptible, and because the branch is not navigable, bank erosion is not a concern.

Watersheds

The site of the proposed facility does not lie within the watershed of a reservoir or other municipal water supply. Development of the facility would have no effect on existing reservoir watersheds.

Chesapeake Bay Resource Protection Area

The North Landing River watershed drains to the south, away from the Chesapeake Bay. The proposed site for public access does not lie within a Chesapeake Bay Resource Protection Area.

100-Year Floodplain

FEMA flood insurance maps for Virginia Beach indicate that the easternmost portions of the proposed public access site lie within the 100-year floodplain (see Affected Environment Map). The 100-year floodplain includes all areas of elevation less than 5'. The proposed boardwalk and viewing deck/canoe launch are to be built within this floodplain, but because construction will not involve filling and will not impede the flow of water across the site, these structures will not alter the floodplain.

Groundwater

Because the water table is near the surface of the ground in many areas of the site, soil compaction resulting from road construction could impede the flow of groundwater. Careful siting of the proposed road and parking area across upland areas will minimize any possible effect on groundwater flow. No other effects on groundwater are expected.

Water Quality

Water quality will not be affected by the construction and operation of the proposed facility.

Natural Areas

The area surrounding the proposed access site does not contain any parks or active recreation areas, though it does encompass the NLR Natural Area Preserve. The area is also the home of Nature Conservancy properties totaling approximately 5460 acres at locations above and below the North Landing River Natural Area Preserve. The access facility proposed by DCR is similar to low-key access projects which have been developed by the Nature Conservancy for their properties.

Important Scenery

Though the area of the proposed access site does not contain any historic views or designated scenic areas, it is pleasingly rural in character. The access project planned is

sufficiently small-scale to blend harmoniously with nearby farming operations. Some screening of the proposed entry drive from the two residential lots on Blackwater road is planned. Additional planting at the entry gates will aid in retaining the character of the area. All shrubs and trees planted will be species native to the area.

Air Quality

No impact on air quality is expected during construction or operation of the proposed facility.

Solid Waste

No solid waste disposal facilities are planned for this site.

MITIGATION

Site selection and preliminary design have been completed with the intention of providing a public access facility while minimizing impacts to the environment. In fact, this public access represents a means of protection for the NLR Preserve and for the larger environment as a result of environmental education and increased public awareness of the North Landing River watershed. Strategies for mitigating environmental impact have been incorporated in the design from the first. These include:

1) Gravel surfacing for the road and parking area to reduce surface runoff and to avoid increased soil erosion and possible impacts on water quality and aquatic life. Additional measures for containing sediment include the implementation of an erosion and sediment control plan and, if necessary, a storm water management plan that meets standards set by the DCR Division of Soil and Water Conservation. Soil erosion anticipated in the construction of the road and parking area can be curtailed using techniques such as silt fencing and immediate revegetation of denuded areas with annual ryegrass. Increased surface runoff may be relatively easily contained by creating shallow swales along the sides of the road and parking area. The extreme flatness of the site and the linear nature of the facility make it unlikely that surface runoff will channelize. More extensive stormwater management practices will be undertaken on the advice of DCR Division of Soil and Water Conservation.

2) Siting of the road and parking area outside the limits of wetlands, to the greatest extent possible. Impacts to wetlands will be further lessened by construction of a boardwalk which spans areas with standing water and permits foot traffic on the site without trampling vegetation or increasing erosion. Wetland areas will be delineated by a qualified consulting firm. Necessary permits for construction in wetland areas will be applied for under the Joint Permit

Application process for the U.S. Army Corps of Engineers and the Virginia Marine Resources Commission.

3) Routing the road, boardwalk, and trails through the driest and least vegetated areas on the site. This effort will reduce the amount of habitat loss and wildlife displacement. The loss of habitat is further reduced by the choice of a relatively narrow (18') roadbed, lessening the amount of clearing and grading required. Some habitat loss can be compensated for by screen plantings of native trees and shrubs along the western portion of the entry drive. These will also serve to preserve the rural character of the access site.

4) Additional permitting and consultation as necessary to ensure compliance with applicable federal and state laws and local ordinances. Among agencies to be consulted are, as already mentioned, the U.S Army Corps of Engineers, the Virginia Marine Resources Commission, DCR Division of Soil and Water Conservation, and the Department of Historic Resources. Other agencies may include the Department of Environmental Quality-- Water Division for Water Protection Permits, the Department of Game and Inland Fisheries, and the City of Virginia Beach Planning Office, and the U.S. Fish and Wildlife Service.

IRREVERSIBLE CHANGES

The proposed access facility may permanently affect the environment in a number of ways, none of which are likely to prove significant to the overall ecological health of the site or the NLR Preserve. Possible irreversible changes to the site as a result of construction are listed below.

1) Construction of the proposed facility may increase surface runoff over the site. However, because the relatively impervious areas (road and parking area) are narrow and linear, and because the slight increase is likely to be absorbed in nearby open, flat ground, it is not expected that runoff or erosion will be significantly increased.

2) Construction of the proposed road and parking area will cut a 30' swath through an area presently wooded, with a loss of approximately 3.02 acres of vegetation. Over time the tree canopy will fill in over the road, but vegetation in the roadbed will be permanently displaced.

3) Loss of vegetation will mean a loss of wildlife habitat as well. Habitat destruction may only be partially compensated for by new plantings. Wildlife may also be displaced by human activity and noise. But given the low-key nature of this project, loss of wildlife habitat to human disruption will be minimal.

4) Construction of the boardwalk will intensify shade over approximately 4500 square feet of wetland. Such shading is likely to have little impact on existing vegetation because the affected areas are already shaded by woodland canopy.

In short, this project will not greatly affect its environment. Rather, it is hoped that this public access project will further wetland preservation and the protection of the environment by safely opening wetland areas to public observation and enjoyment, and educating and exciting individual citizens about their natural heritage in Virginia.

VIRGINIA BEACH NATURAL AREAS INVENTORY

NORTH LANDING RIVER WATERSHED -- PUNGO FERRY POCOSIN NATURAL AREA

SIZE: ca. 2200 acres **BIODIVERSITY RANK:** B2

LOCALITY: City of Virginia Beach

QUADRANGLE: Creeds **QUADRANGLE CODE:** 3607651
Pleasant Ridge 3607661

LOCATION: The site lies to the north and south of Pungo Ferry Road, west of the North Landing River. It is bordered to the north by a large creek, locally known to as Alton's Creek. The western boundary generally follows the edge of upland vegetation. The southern border is Blackwater Creek, and the eastern border is the North Landing River.

NATURAL HERITAGE RESOURCE SUMMARY TABLE

COMMON NAME	SCIENTIFIC NAME	GLOBAL RARITY RANK	STATE RARITY RANK	USFWS LEGAL STATUS	VA LEGAL STATUS	ELEMENT OCCUR. RANK
* COMMUNITIES						
POND PINE/FETTER-BUSH TALL POCOSIN	OLIGOTROPHIC SATURATED WOODLAND		S1			A
* PLANTS						
ASTER-LIKE BOLTONIA	BOLTONIA ASTEROIDES	G5	S2			H
ATLANTIC WHITE CEDAR	CHAMAECYPARIS THYOIDES	G4	S2			A
BIG-HEAD RUSH	JUNCUS MEGACEPHALUS	G4G5	S2			H
ELLIOTT'S ASTER	ASTER PUNICEUS VAR ELLIOTTII	G5T3T4	S1			U
LARGE CRANBERRY	VACCINIUM MACROCARPON	G4	S2			H
SHEEP-LAUREL	KALMIA ANGUSTIFOLIA	G5	S2S3			A
* VERTEBRATES						
CANEBRAKE RATTLESNAKE	CROTALUS HORRIDUS ATRICAUDATUS	G5TUQ	S1		LE	U
* INVERTEBRATES						
GREAT PURPLE HAIRSTREAK	ATLIDES HALESUS	G5	S3			U
SAFFRON SKIPPER	POANES AARONI AARONI	G4T4	S3			U
SCARCE SWAMP SKIPPER	EUPHYES DUKESI	G3G4	S2		C	A

SITE DESCRIPTION: Pungo Ferry Road bisects the site and affords a marvelous opportunity to observe the gradient of wetland vegetation. Dense, nearly impenetrable pocosin gives way to shrub swamp, and then to robust emergent marsh bordering the North Landing River. The pocosin is one of Virginia's finest examples of this community type. It has burned frequently in the past and currently supports a woodland dominated by pond pine, tall ericaceous shrubs, and Virginia chain-fern. The marshes are exposed to wind tides, and the water is fresh to very-slightly brackish.

The upland forest within the forested wetlands at this site appears to be unusual and is worthy of further study.

BOUNDARY JUSTIFICATION: The conservation planning boundary includes the significant natural community and habitat for the rare species.

THREATS: The primary threat facing this site is the lack of fire, which is necessary to maintain the pocosin community. Common reed, an invasive, exotic species may be threatening the natural vegetation of the marshes.

CURRENT STATUS: Most of the site is owned and managed by the Virginia Department of Conservation and Recreation as the North landing River Natural Area Preserve. The preserve is a dedicated natural area, which provides the strongest level of protection to natural heritage resources through formal recognition and stringent legal safeguards against conversion to inappropriate uses. Additional lands are privately owned.

PROTECTION RECOMMENDATIONS: To ensure that the natural heritage resources on this site persist, and to allow for safe management, the remainder of the site, including upland buffers, needs to be given permanent legal protection.

MANAGEMENT RECOMMENDATIONS: Develop and implement a management plan that includes prescribed burning. Monitor the health of the pocosin, the associated rare species and common reed in the marsh.

DEPARTMENT OF CONSERVATION AND RECREATION

RECEIVED
DEC 15 1993
Conservation & Recreation
DIVISION OF NATURAL HERITAGE

Hazardous Waste Site Inspection:

I. Site Information:

A. Name of Site: Kellam Property - Blackwater Road

B. Address: 4800 block of Blackwater Road.
GPIN # 1440001013000.

C. Zip Code: 23457 D. County: City of Virginia Beach

E. Site Coordinates: Latitude 36° 58' 10"
Longitude 76° 05' 30"

F. Directions to Site: property is located to the east of Blackwater Road at the 4800 block of Blackwater Road, approximately 1.8 miles north of Pungo Ferry Road.

II. Background Information:

A. Present Owner: Floyd E Kellam, Jr. and Annie B. Kellam
Phone: (804) 427-2020 Address: P.O. Box 6129 Virginia Beach, Virginia
Zip Code: 23456
Present ~~Previous~~ Use: forestal

B. Previous Owner: see Attachment A
Phone: ( ) Address:

Date of Ownership: From 1972 To 1973
Use of Site: forestal

Previous Owner:
Phone: ( ) Address:

Date of Ownership: From To
Use of Site:

C. Septic Tanks and Drainfield: Indicate location and condition of all known: None on property

D. Size: 110 acre tract

E. Topography: flat

F. Aerial Photographs: Reviewed? Yes ✓ No _____
Date of Photograph 1984

Is there any questionable location on site which might indicate the presence of hazardous waste? Yes _____
No ✓ If Yes, identify _____

G. Are there any Hazardous Waste Sites or Handlers in the area (within the same Zip Code Area or adjacent Zip Code Area)? (Handler List and CERCILS List) Yes _____
No _____ If Yes, list:

1. _____ File # _____
2. please refer to Attachment B File # _____
3. _____ File # _____
4. _____ File # _____
5. _____ File # _____
6. _____ File # _____

H. Site History (Previous Use): Site has always been forested; no residences or structures ever on this tract. Acreage on Blackwater Road has been used for row-crop agriculture

I. Present/Past Zoning of Site: rural/agricultural
Present/Past Permits issued by Department of Mines, Minerals & Energy: none
Present/Past Permits Issued by Locality none

III. Site Inspection:

A. Date: Oct. 20, 1993, Oct 13, 1993, May 12, 1993

B. Present Weather Conditions: clear all days

C. Previous (24 hours) Weather: rain prior to Oct. 20, 1993 visit

D. Was the present Owner or a Representative of the Owner on site during this inspection? Yes _____ No ✓

E. Is there an Owner's Geology Report (Owner's Files) available on the site? Yes _____ No ✓

F. Water Resources:

1. List the types of water resources located on site. evidence of water in ditches bounding the west, south and north sides of this parcel; also ~~ditches~~ water in ditches running from North → South across this parcel. No ponds, lakes, running streams on this property.

2. Do any of the water resources issue an unusual or chemical odor? Yes _____ No ✓ Maybe _____

3. Are any of the water resources absent of animal life? Yes _____ No ✓ Maybe _____

4. Are any of the water resources absent of plant life? Yes _____ No ✓ Maybe _____

5. Do any of the water resources have a large amount of suspended particles?
Yes _____ No ✓ Maybe _____

6. Is there an absence of plant life to the water resources edge? Yes _____ No ✓ Maybe _____

7. Does the ground water have an unusual or chemical taste? Yes _____ No ✓ Maybe _____

8. Are there any visible signs of any substances being discharged into the water resources?
Yes _____ No ✓ Maybe _____

9. Does the Health Department have any restriction on the quality of the ground water source?
Yes _____ No ✓ Maybe _____

10. Are abandoned wells sealed?
Yes _____ No N/A Maybe _____

11. Are there any bad wells on record nearby?
Yes _____ No none known Maybe _____

12. Is there any factor within the existing water shed that might affect this site (upstream)?
Yes _____ No ✓ Maybe _____
If so, what? none known

13. Where is run off coming from? land drains naturally from west to east

G. Soil Conditions:

1. Is there any abnormal discoloration of surface soil? Yes _____ No ✓ Maybe _____

2. Are there any signs of "stress" vegetation or unexplained absence of vegetation?
Yes _____ No ✓ Maybe _____

3. Is there any visible storage container (drums, trunks, tanks, etc.)?
Yes _____ No ✓ Maybe _____

4. Are there depressions on site which might be sink holes or collapsed wells or mines?
Yes _____ No ✓ Maybe _____

5. Are there any lagoons or holding facilities?
Yes _____ No ✓ Maybe _____

6. Is there any dumping on site? If Yes; what is being dumped? 2 piles of fiberglass singles, less than 1 cubic yard.

7. Owner or Owner's Representative knowledge as to any buried problems (Example old farm dump)?
Yes _____ No ✓ Maybe _____

8. Are there any landfills on site or near the site?
Yes _____ No ✓ Maybe _____

H. Facilities:

1. List the facilities on site: Their size, age, general condition and past use: Their are no structures or facilities on this site.

2. Is an asbestos inspection needed?
Yes _____ No ✓ Maybe _____

I. General Review:

1. Are there any unexplained animal deaths?
Yes _____ No ✓ Maybe _____

2. Is there now or has there been any toxic substance (including pesticides or herbicides) stored on site? Yes _____ No ✓ Maybe _____

3. Is there a military installation adjacent to the site? Yes _____ No ✓ Maybe _____

J. Does the inspection warrant futher investigation?
Yes _____ No ✓ Maybe _____

Inspection Agent: Laurence R Smith
Signature

LH/sml
2/4/91

COMMONWEALTH of VIRGINIA

Hugh C. Miller, Director

Department of Historic Resources
221 Governor Street
Richmond, Virginia 23219

TDD (804) 786-1934
Telephone (804) 786-3143
FAX (804) 225-4261

January 27, 1993

Larry Smith
Department Of Conservation And Recreation
203 Governor Street
Richmond, Virginia 23219

RE: ACQUISITION NEAR NORTH LANDING RIVER
VIRGINIA BEACH, VIRGINIA
VDHR File No. 93-0071-F

Dear Mr. Smith:

Thank you for your letter of January 19, 1993 describing the project. Our staff has completed review of the project. Based on the information submitted, we have determined that the proposed undertaking will have no effect on historic properties.

Thank you for the opportunity to comment on this project. You have met the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended. If you have any questions regarding staff review of the undertaking, or if we can provide further assistance, please contact Tony Opperman.

Sincerely,

Tony Opperman, for
Bruce J. Larson
Project Review Supervisor

Appendix C

Public Access Plan and Visual Resource Assessment for the North Landing River Watershed

Project Purpose

This plan will recommend appropriate public access opportunities to natural and cultural areas and identify significant visual resources within the North Landing River watershed.

Project Deliverables & Products

A report containing a plan for the enhancement of public access and visual resources in the North Landing River watershed. Implementation of this plan would provide educational opportunities, interpretative facilities and access to natural areas.

Project Timeframe

October 1992 through December 1993

Grant Funding 1992 Coastal Zone Management Program Grant from the National Oceanographic and Atmospheric Administration (NOAA) awarded through the Virgina Council on the Environment (COE).

The North Landing River Watershed

The North Landing River contains one of the most diverse and unspoiled wetland systems in Virginia. The wetlands cover an area of more than 15,000 acres in the Cities of Virginia Beach and Chesapeake. Although located near the fastest growing city in the Eastern United States - Virginia Beach, the area contains extensive freshwater marshes, pocosins, and forested swamps supporting twenty-four rare species. The area also provides important habitat for breeding and migrating waterfowl. The North American Waterfowl Management Plan through the Atlantic Coast Joint Venture (covering an area from Maine to South Carolina) has identified the wetlands of the North Landing as a top priority for protection.

In 1989, the North Landing River was designated as a Virginia Scenic River pursuant to the Virginia Scenic Rivers Act of 1970. A local interest group initiated the legislative process for protection and recognition of the river as a natural, scenic, historic and recreational resource of statewide significance. The river designation includes the North Landing River from the North Carolina line to the bridge at Route 165.

The Department of Conservation and Recreation owns and manages a 1900-acre natural area preserve on the river. Tracts are located north and south of Pungo Ferry Road. The Nature Conservancy has acquired nine other tracts totalling 3,800 acres. Those tracts extend north from the North Carolina state line to the Great Bridge locks on the Intracoastal Waterway, spanning a distance of 18 miles. It is the intention of public an private landowners to develop some level of compatible access, passive recreation, and interpretation for these natural areas. Each of these natural lands are limited in their potential for public access development due to the lack of suitable upland access areas on the parcels.

North Landing River Natural Area Preserve

1886 Acres, Virginia Beach

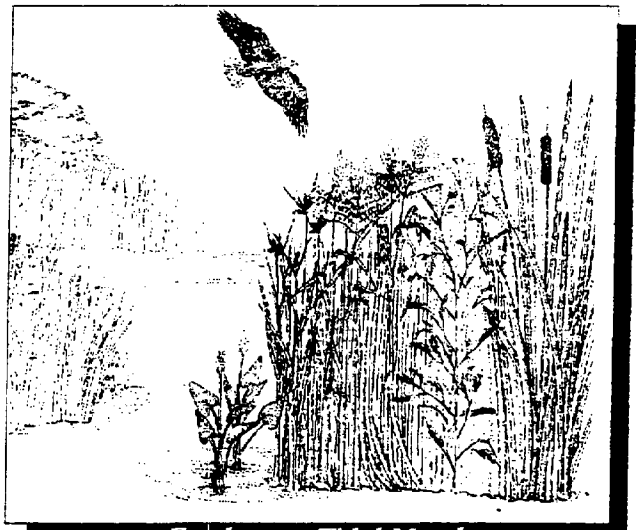
Site Description: Long forgotten and until recently unstudied, pocosins appeared impenetrable and were alleged to contain dense populations of venomous snakes. Today, pocosins are considered among the least understood and fastest disappearing habitats in the southeastern United States. The North Landing River Preserve protects some of the finest remnant pocosins on Virginia's Coastal Plain. This unique wetland community and the forested swamps and freshwater tidal marshes of the lower North Landing River support as many as twenty-seven rare species. The area also provides important habitat for breeding and wintering waterfowl.

Natural History: Seemingly uniform in appearance, the extensive freshwater marshes support a surprising diversity of species. These wetlands are strongly influenced by wind tides. Winds blowing from the east push sea water through Currituck Inlet and farther northward causing irregular water level fluctuations on the North Landing River. Many plants reach their northern range limits here, utilizing Currituck Sound as a corridor for movement northward. One of these, Sawgrass, a species common to the Florida Everglades, is well represented in the North Landing River marshes. Perhaps the most stunning and visible plant of the marsh is the orange flowered lance-leaved milkweed. The Least Bittern and King Rail are a few of the hidden treasures of the marsh.

Tucked away between the marsh and swamp forest is one of Virginia's rarest communities, the pocosin. Pocosins are peatlands characterized by a dense understory of evergreen shrubs such as Inkberry, Wax Myrtle, and Fetterbrush. Pond Pine, Atlantic White Cedar, Red Bay, and Sweet Bay occur as scattered individuals throughout the shrub bog. Tying the trees and shrubs together to form an impenetrable tangle is the thorny vine, Greenbrier. Fire and other disturbances have played a major role in the development of this community. Prescribed burning research will tell us a great deal about the effects of fire on vegetative composition and productivity. Much remains to be learned about this rare wetland. To this end, the Division of Natural Heritage and The Nature Conservancy are developing a management plan which will address research needs, prescribe appropriate monitoring techniques, and guide habitat management.

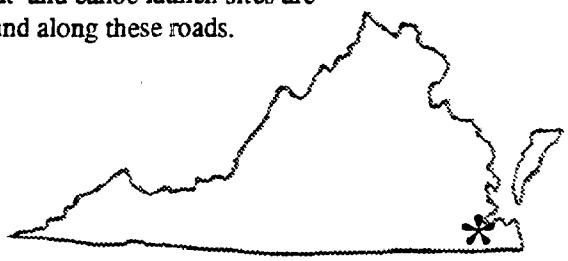
Protection History: The preserve was acquired by The Nature Conservancy on behalf of the Commonwealth in two separate transactions. North Landing River was dedicated as a state natural area preserve in 1990 and is managed by the Department of Conservation and Recreation. Protection was made possible through a tremendous cooperative effort of The Commonwealth of Virginia, The Nature Conservancy, the National Fish and Wildlife Foundation, and Ducks Unlimited.

Visitation: The preserve is open year-round, but public access facilities have not yet been developed. The North Landing River, a designated state scenic river, provides excellent canoeing opportunities and breath-taking scenery. For more information, please contact the Department of Conservation and Recreation, Division of Natural Heritage.



Freshwater Tidal Marsh

Location: The preserve can be reached via Blackwater and Pungo Ferry Roads. Several boat and canoe launch sites are found along these roads.



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